MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

VOL. LXXIX No. 2052 [*Registered at the G.P.O. as a newspaper*] LONDON, JULY 26, 1958 PRICE NINEPENCE

CURRENT TOPICS

Two Wage Settlements

WITH commendable commonsense the B.T.C. offer of a 3 per cent pay increase to the 115,000 workers in railway workshops was accepted on July 21 by the representatives of the National Union of Railwaymen and the Confederation of Shipbuilding and Engineering Unions. Back-dated to June 30, it is subject to review in the light of further developments and the promised general review of wages for railwaymen. A similar settlement for 4,000 L.T.E. shopmen is anticipated. The B.T.C., to which the award represents a further cost of £1,500,000, is satisfied that the co-operation of the union can be relied on, although a positive restatement of measures of co-operation towards maximum productivity and economy has been avoided. The Confederation has dropped its endeavours to secure a better offer from the B.T.C. The London bus pay dispute was finally settled last week—another triumph for reasonableness, although the men's side still claim that the treatment of their claim and the proposals to reduce services and close garages makes "beneficial co-operation" with London Transport difficult. There are none so blind as those who won't see and here is a case. It has been apparent to all observers for two years that London bus traffic was falling at a fairly fast rate which the strike sharply accelerated. The 14 per cent drop in traffic is being met by some service reductions already detailed in our columns. It was only later made apparent that not so many roads as might have been thought were being left wholly uncovered. There are numerous diversions and extensions that will cover the gaps. It has already been stated that no redundancy will be created.

Reports on Fog Accidents

AN onerous duty has been well carried out by Brigadier C. A. Langley, Chief Inspecting Officer of Railways, Ministry of Transport, in producing reports on the St. Johns and Dagenham railway accidents which took place last winter. As will be recalled a difficult task was made more complex in the case of St. Johns by the sad fact that Brigadier Langley's predecessor, Lieut.-Col. G. R. S. Wilson, died after holding his inquiry and it was necessary therefore, to go over some of the ground again. Sole responsibility for St. Johns is put squarely on Driver W. J. Trew, who made the unwarranted assumption that signals which he did not see, owing to the weather, stood at clear instead of caution, so that he overran a stop signal with lamentable results, the collision causing 90 deaths and 109 serious injuries, as well as bringing down an overbridge about to be traversed by another train. Had Trew been in charge of an electric or diesel train he could hardly have failed to see the colour lights even in dense fog; his difficulties with limited visibility round the boiler could have been overcome at the signals in question by stepping to the right-hand side of the cab. Automatic warning control would, of course, have given Trew no opportunity to overlook the caution aspects. Brigadier Langley discusses other warning and control systems but does not recommend anything different from what is being already carried out. At Dagenham the situation was not as clear cut as at St. Johns and rules alterations to safeguard the situation are discussed for semaphore signals where co-acting detonators are not provided.

Diesels from Derby

THIS week yet another diesel locomotive type built in British Railway shops was being shown for the first time. It is the 1,160 h.p. diesel-electric built at Derby with Sulzer power unit and B.T.H. electrical equipment. The series, to be numbered D5000—D5029, is designed and constructed to the requirements of the British Transport Commission under the general direction of Messrs. R. C. Bond and S. B. Warder (chief mechanical engineer and chief electrical engineer respectively, B.R. Central Staff), detailed design and supervision of construction being the responsibility of Mr. J. F. Harrison, chief mechanical and electrical engineer, London Midland Region. The main contractors for the power equipment are the British Thomson-Houston Co., Limited. Of the 30 locomotives, 15 will go into service on the Southern Region, five on the L.M. and 10 on the Eastern Region. They will pass a 12 ft. 8 in. high loading gauge and can thus work over the Metropolitan Widened Lines of London Transport. These eight-wheeled units, which we have inspected under construction at Derby, weigh 75 tons in working order, have a maximum tractive effort of 40,000 lb. and can exert 21,300 lb. continuously at 15 m.p.h. Their versatility is considerable; for heavy duties they can be operated in multiple and for fast service they are authorised to run at up to 75 m.p.h. Riding is notably steady. An anti-slip brake is employed for the first time on a British Railways locomotive. Carriage heating boilers are carried for passenger working. The first five diesel power units are being supplied from Switzerland (one is on view in Brussels) but the remaining 25 are being built to Sulzer orders by Vickers-Armstrong at Barrow where on a splendidly organised visit earlier this week we were impressed by the work being carried out.

LEADING FEATURES IN THIS ISSUE

Canal Tunnel Centenary

THE last canal tunnel to be built in this country was Netherton on the Birmingham Canal Navigations. It is 3,027 yards in length and is distinguished by its large dimensions—it is 27 ft. wide including the two towing paths, with a clear channel of 17 ft., and 15 ft. 9 in. high above water level. The only canal tunnel to be made bigger, Strood or Higham on the Thames and Medway, had already become a railway tunnel when Netherton was built as an alternative to the very restricted and rather longer Dudley Tunnel, 8 ft. 5 in. wide and only 5 ft. 9 in. above water, designed by Brindley. The work on Netherton began in December, 1855; it was opened on August 20, 1858, and the centenary was marked (a little early) by the Railway and Canal Historical Society last weekend. The former Staffordshire and Worcestershire Canal Company's committee boat *Lady Hatherton* was used for the visit, which was continued right into Birmingham, so that the three levels, 490 ft. (abandoned), 473 ft. and 453 ft. (Telford's lockless improvement on Brindley's original line, completed in 1829) could be studied between Spon Lane and Smethwick. Telford's modifications involved a cutting 71 ft. deep at one point; his canal is 40 ft. wide, with towing paths on both sides and tollhouses on island sites in the canal. The inspection, which began with a pilgrimage to the portal of Dudley Tunnel, closed for navigation three years ago (would it be worth reopening for a combination of canal cruising and speliology at a substantial charge per person?), ended at Worcester Bar in Birmingham, where for a long period until 1815 the Birmingham Canal refused to permit through traffic from the Worcester and Birmingham Canal in the belief that it was, by so doing, protecting its coal traffic from the Dudley area. Netherton Tunnel, in its centenary year, is still busy, handling 15,000 tons of coal, 18,500 tons of general merchandise and 1,500 tons of tar annually. Other traffic than coal and tar includes tubes, scale, coke and scrap metal; there may be a future development in connection with the proposed Midlands container scheme for miscellaneous British Waterways traffic between the Black Country and Birmingham.

Stilton By-pass Opened

THE first by-pass to be completed on the Great North Road since the decision in 1955 to modernise A1 from London to Newcastle-on-Tyne opened on Monday by Mr. David Renton, M.P., Joint Parliamentary Under-Secretary, Home Office. It is a 1¼-mile stretch of road with two 24-ft. carriageways. It diverts traffic to the east of Stilton and forms part of the £2,500,000 improvement programme on the A1 which is being undertaken by Huntingdonshire County Council as agent for the Minister of Transport. These improvements extend from a point near Eaton Socon to the River Nene at Wansford, a distance of 28 miles. Two 24-ft. carriageways are being provided in place of the previously narrow and meandering single carriageway, and there will be 14 new railway, river and fly-over bridges. The whole scheme has been planned in convenient sections to eliminate the worst bottlenecks first and to avoid interfering unduly with the heavy traffic using the road, estimated a 33,000 tons each 24-hour day. Some £1,500,000 worth of work has been put in hand and provides for 16 miles of the total 28. It is hoped that all the contracts for the Huntingdonshire programme will be let by the year 1960. Stilton, besides being famous for cheese, has a place in highway history, as toll collection was authorised there in the original Turnpike Act of 1663.

Sad Story of a Canal Bridge

THE maintenance and renewal of road bridges over their tracks is an irksome responsibility of railway and canal authorities, now vested in the British Transport Commission. From this statutory duty the Commission would no doubt welcome relief, as is now proposed in impending legislation in Eire. Reasonably enough, responsibility for reconstruction is limited to the standards which sufficed when the bridge was originally built. The subject has recently been brought to public notice by Lord Ebbisham, president of the London Chamber of Commerce, who in a letter to *The Times* has pointed to the need for reconstructing the Narrow Street swing bridge over the canal at Stepney in a way which would enable it to carry modern commercial traffic and thus relieve a main road. To the suggestion that the Stepney Borough Council, as the highway authority, has a responsibility in the matter, Mr. James Olley, Leader of the Majority Group on that body, replied that the bridge is the "statutory liability" of the B.T.C. This was too much for Mr. J. H. Brebner, public relations adviser to the Commission, who has entered the fray to point out its limited responsibility for this 100-year-old bridge. While, he says, the Commission sympathises with the desire for an up-to-date structure, it does not feel it should bear the whole expense of reconstructing to present-day standards; that furthermore a decision to replace the bridge to its previous standards was only taken when negotiations with the highway authority had broken down. Given a reasonable contribution the Commission would have provided a modern replacement. This seems a case for a little enterprise by the Ministry of Transport in assisting the Metropolitan Borough of Stepney to make an improvement for the general good without spending a great deal of ratepayers' money on a matter of little local value.

A Brief Debate

BECAUSE of a pending announcement on international affairs the House of Commons discussed the annual report and accounts of the British Transport Commission much more briefly than is customary. Mr. Harold Watkinson, although adamant on the stringent financial discipline he is administering to the Commission as its "banker," put the B.T.C. case well in many ways. The railway system, he pointed out, was designed in a carless age and it would be wild folly to keep it thus. The Commission was neither strangling it to death nor cutting off its limbs but fitting it to live with the motor vehicle and for road and rail to be complementary. A streamlined and smaller railway system could be more profitable. For modernisation purposes the B.T.C. had as much money for capital investment this year and next as it thought it could usefully spend. There was little scope for raising fares and charges and that was why economies were so important both on the railways and in London Transport; at the same time men were not being ruthlessly sacked and the Commission recognised its moral obligation towards employees in the towns where the railway was the main seat of industry. The future was good; diesels improved passenger business and on the freight side the B.T.C. was fully seized of the needs of road-rail and door-to-door facilities of a competitive nature. Mr. Ernest Davies, in condemning the Government's fetish of competition, pointed out the high proportion of modernisation costs met by the Commission itself from depreciation and renewals funds—£73 million out of £137 million last year. After that comparatively little of interest emerged, except for Mr. Norman Cole's attack on the Commission's apparent happiness about road vehicle fuel tax at 2s. 6d. a gallon. Mr. Airey Neave, Joint Parliamentary Secretary, Ministry of Transport, was able to wind up on the optimistic note that the railways were not a lame dog to be helped over a stile, but an organisation with great opportunities which did not regard the course as too stiff or prospects as unpromising.

MODERN TRANSPORT

Published Every Friday
RUSSELL COURT, 3-16 WOBURN PLACE, LONDON, W.C.1
Telephone Number: TERminus 0303 (3 lines)
Telegraphic Address: Transpubco, Westcent, London

ANNUAL SUBSCRIPTIONS
BRITISH ISLES, 35/-; CANADA, 32/6;
ELSEWHERE ABROAD, 35/-
payable in advance and postage free

The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

B.R.S. Triumphed in 1957

CONCEDING that for much of 1957 the supply of road transport was in excess of demand, Mr. G. R. H. Nugent, the Joint Parliamentary Secretary to the Ministry of Transport, nevertheless saw evidence last week that Government policy for competition in transport was succeeding in the sense that haulage rates were kept at a "low" level. Mr. Nugent, who was winding up the debate on the annual report and accounts of the British Transport Commission, had evidently forgotten the derisive reception which greeted a similar observation about rates at a hauliers' luncheon not long ago. He would be hard put to it to find a responsible haulier who would wholeheartedly subscribe to his optimism. How "low" an individual rate must fall to become uneconomic or even ruinous will probably ever remain an issue in the industry; the report of the B.T.C. makes it perfectly plain, however, that British Road Services, in its general haulage section, feels that the nadir was long since reached. Now it finds competition so fierce that, far from being able with confidence to lift rates to meet higher costs, costs which it incurs in common with all hauliers, it is impossible even to maintain existing rates in many cases. That the undertaking as a whole, and general haulage in particular, succeeded in holding its own in these circumstances, with, of course, no special advantages in charges or operating rights over other hauliers, speaks volumes for its technical efficiency, measured in terms of a modern and varied fleet and a national coverage of depots, going to provide service when, where and how it is wanted.

The Year that Never Quite

FOR British Road Services, 1957 promised an uneventful 12 months—uneventful, that is, when compared with the hectic disposal period which had just drawn to a close. There was to be an opportunity to regroup and consolidate within the newly activated company framework, to improve the efficiency and economy of all sections of the business and to demonstrate that efficiency in terms of customer service in a competitive sphere. The Suez episode—an untimely reminder at this point—upset some of these aspirations. Half the year had elapsed before its malign influence, reflected in fuel rationing, was removed, but, curiously, it had strongly opposed consequences for the general haulage and parcels sections. The former suffered badly (B.R.S. could hardly emulate the pushfulness of some private hauliers in the matter of additional fuel supplies), the latter enjoyed a windfall in the shape of traffic transferred from C-licensed vehicles. A more serious portent in the later months of the year was an excess of carrying capacity in haulage with the onset of the trade recession. Measured against these twin events the net receipts of £2.8 million (after depreciation) for 1957, £1 million more than in the previous year, and with a rather smaller fleet, suggests a remarkable resilience to external factors and an ability to sell on service in an industry where charges come first in the assessment of many users. The net revenue improvement, which is sufficient to cover interest and central charges, was, moreover, secured on gross receipts which, at £50.3 million, were no higher than in 1956; working expenses, at £47.5 million, were £1.1 million down, the most notable item being maintenance (a £1.25 million drop), thanks to the scaling-down of engineering facilities to match a contracting, but more modern, fleet.

Vulnerable General Haulage

NEARLY all branches of operation made their contribution to this heartening outcome. Perhaps the most pleasing, even unexpected, showing was that put up by general haulage. Here net receipts of £109,000 in 1956 were last year improved to £195,000; this is the section now operated by British Road Services, Limited. The parcels and smalls section, B.R.S. (Parcels), Limited, advanced its net receipts from £1,135,000 to £1,498,000 and the special traffics division, organised into B.R.S. (Pickfords), Limited, and always a tower of strength, contributed £1,012,000 against only £362,000. Good results were also secured from B.R.S. (Contracts), Limited, with net receipts at £245,000 (£113,000). That the 8,500 or so specialised vehicles between them earned some £2.6 million while the 7,800 general haulage fleet mustered only £200,000 is a measure of the prospects in that sector. Only B.R.S. (Meat Haulage), Limited, was an exception, its net deficit of £65,000 being actually double that of the previous year. The heavy loss on a fleet of only 500 vehicles (many of which have been renewed) probably reflects the very high operating costs peculiar to this section of the business. Efficiency is to be increased now that the future can be ascertained with more certainty. Capital expenditure during the year totalled a little over £7 million, £6 million of it going on vehicles, but for the current year a reduction is anticipated due to the operation of Government restrictions. The company structure is yielding benefits over and above those anticipated in some quarters when it was written into the 1953 Transport Act. The company boards have served to provide a rallying point at which the special needs of the individual companies can receive attention and be transmitted to the overall board of management; at the same time it was acknowledged that separating out had in some instances induced or accentuated watertight divisions and steps have successfully been taken, in the shape of interworking, notably between the general haulage and parcels companies, to remove dangerous tendencies to excessive separatism while improving all-round efficiency.

Trade Recession the Villain

THERE is no disposition at this juncture among the B.R.S. management to regard C-licence developments in as fearful a light as do the railways, although it is conceded that the C-vehicle at present contributes to the overall surplus of road carrying capacity. The threat, insofar as it exists at all, is probably to general haulage rather than to parcels; the latter is credited with having gained from all sources twice as much traffic as it lost, despite the basic difficulty of inadequate depot accommodation, particularly during peaks. Mechanical handling is helping there. The principal and continuing blow to general haulage is seen in the prolongation of a trade recession and consequent scramble for what traffic is available, accompanied often by what is characterised as senseless and irresponsible rate-cutting. Improvement seems likely to await a trade revival. Some may have wondered how hauliers can meet an annual wage claim, provide their drivers with bonus payments and absorb higher costs elsewhere without increasing rates—many in fact are now back to 1948 level. The blunt fact is that haulage is being conducted according to two very different sets of rules. One, observed by B.R.S. and reputable hauliers, pays attention to the statutory requirements as to drivers' hours, speed and maximum or recommended loading, the other transparently flouts them. The difference between these two codes provides the owner with his profit margin and the driver with a bumper pay packet. Only greatly stepped-up M.o.T. enforcement can redress the balance between the law-abiding and the lawless.

Still Scope for Further Service

ONE of the most formidable weapons in the B.R.S. armoury is the extent of its diversification and specialisation. Contract-hire vehicles, for example, now number 2,450 (500 of them in the Pickfords company), compared with only 1,000 when the companies commenced trading in September, 1956. But in addition many general haulage depots operate quasi-contract services for their customers. There should be scope for greater development along these lines and there may even be room for special vehicles to operate in one direction on a semi-contractual basis, returning in common user. It is by such means that road haulage could demonstrate anew its flexibility and its economic advantages to the user over and above what his own transport arrangements could offer. All in all, B.R.S. may be said to have shaped up well in a changing road transport regime. It is increasingly accepted even by rivals as a competent force and a stabilising influence, but that influence is limited when so many outsiders are busily rocking the ship.

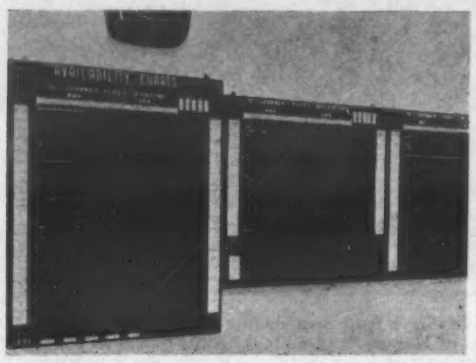
ADVANCE PLANNING OF ROAD DELIVERIES

The Reed Transport Example

EFFICIENCY IN HANDLING GROUP PRODUCTION

FOUR years ago Albert E. Reed and Co., Limited, parent company of the Reed Paper Group of companies, decided to co-ordinate and ultimately to rationalise the transport operations of its paper manufacturing and converting companies wherever possible, and Reed Transport, Limited, was formed for the purpose, with headquarters subsequently at Aylesford Paper Mills, near Maidstone. Rationalisation is a long-term objective towards which progress has already been seen in the engineering sphere with the opening of a fine maintenance depot for 200 commercial vehicles and company cars at Aylesford (MODERN TRANSPORT, November 23, 1957). This depot will be adequate for all the demands likely to be made upon it in the area.

Co-ordination of at least part of the traffic requirements of six companies on the 450-acre Aylesford site and of two at Greenhithe and Dartford also is achieved at Aylesford through the transport company. It benefits from a system of advance programming of vehicle movements which has been developed over a period of years and is probably a model of its kind.



The Aylesford traffic control desk of Reed Transport employs telephones, teleprinter and two-way radio; right, Movigraph wall chart spotlights causes of non-availability in the 130-vehicle fleet

Maximum Efficiency in Vehicle Usage

Primary objective of this daily preplanning exercise is to ensure the prompt clearance of mill production. Reserve capacity for storage at the point of production varies from nil upwards; even where it does exist storage is usually achieved only at the cost of double handling, i.e. by transport to a nearby warehouse and then out again. The Reed Group is concerned with paper for almost every industry. Newsprint represents only a small proportion of output, but maintenance of uninterrupted supplies to the London and provincial presses with unfailing punctuality alone affords a supreme case for advance planning. In any event, the 6,000 tons of paper, pulp, chemicals and other raw materials which the transport company carries their way on to Reed Transport vehicles. The Group specialises in paper packaging and its converting factories supply more than one-third of Britain's corrugated fibreboard cases and multi-wall sacks, as well as cartons, suitcase board and leather board.

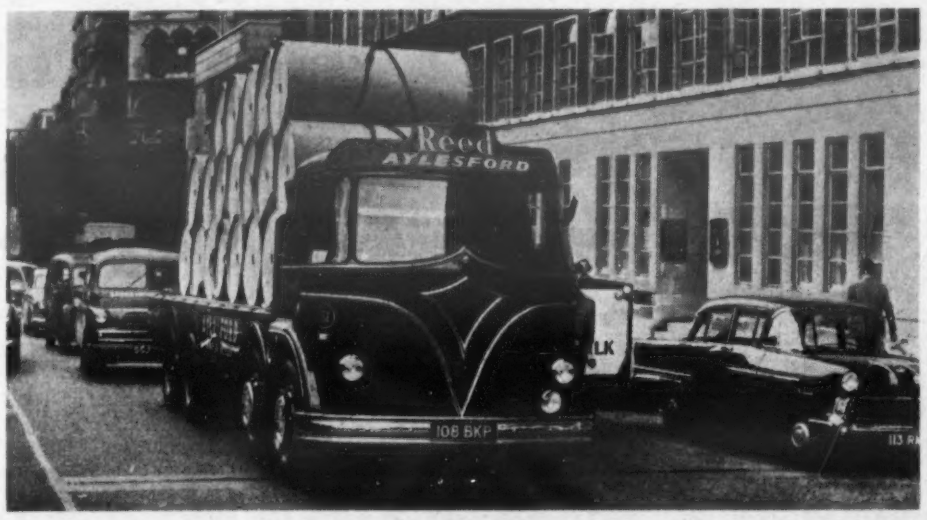
For return loads there is waste paper to be drawn from numerous points and raw materials for the mills. Aluminium sulphate and china clay come from the West Country and alum from Widnes also. Blackburn sends paper and there is usually paper-making machinery or parts thereof to be picked up somewhere. Reciprocal arrangements exist for London or Kent vehicles to collect from the Thatcham mills in the Reed Paper Group primarily serviced by Cropper and Colthrop Transport Co., Limited (also a Group company), and for the latter to load in turn from Kent.

Immediate attention to the transport needs of the Aylesford mills necessitates close adherence to production schedules. This is in itself a factor compelling advance planning of transport. However, among the major objectives of group transport must be to secure maximum vehicle utilisation without wasteful user, also that the cumulative demands for vehicles from the various using interests are fairly weighed and effectively dovetailed.

No Vehicle Overlooked

Advance programming in the experience of Reed Transport fills the bill. The basic document, a six-day programme sheet (the week commences on Saturday) makes it impossible to overlook an available vehicle since it indicates clearly the position, whether loaded or empty, of each at the end of the day. There are no surplus vehicles. The other basic assumption on which programming proceeds is the knowledge, with a fair measure of certainty, of when a journey vehicle will be returned and available for a further load.

Long-distance deliveries are scheduled in the light of past experience, not only of the requisite driving time, but of unloading conditions at destination; if a second or third delivery is included in the load a time allowance is added on a similar basis. Needless to say, the driver is instructed to telephone the traffic office, before 4 p.m., if he is unexpectedly delayed.



Newsprint forms only a small part of the output of Aylesford, but this Foden eight-wheeler looks impressive with its 16-ton load for the "Daily Express"

weekly cannot wait while vehicles are found or deployed in only haphazard fashion. The purpose is therefore to allocate traffics to the most efficient and economical class of transport, regard being had to known customer requirements and preferences, and to secure maximum utilisation from the 133 vehicles employed on journey work and from their drivers also.

Vehicle Strength

Road Transport is responsible for the operation of an A-licensed fleet of 33 vehicles, an Aylesford-based C-licensed fleet of 28 vehicles engaged on journey work and 43 London-based C-vehicles similarly employed. Additionally it controls 29 C-licensed units on local work in the Kent area. It is intended eventually to standardise on three principal classes of vehicle, Foden rigid six- or eight-wheelers and B.M.C. diesels for the medium 7-tonner and the 10-ton articulated unit. Semi-trailers provide a ready solution to the mill transport problem since they can be utilised as temporary storage space. Articulation is considered to be adaptable to perhaps 85 per cent of all traffic. There are already 85 semi-trailers in the fleet, 50 of them allocated to journey work and of these 16 in turn are available as a float on the Aylesford site for the purpose outlined.

Various companies within the Group produce, in addition to newsprint and kraft, wallpaper base, crêpe papers, tissues and toilet papers, cellulose wadding, pitch-fibre pipes, roofing felt base and laminated plastics products. Paper is supplied to converters elsewhere in the Group, located as far distant as Edinburgh and Newcastle upon Tyne, and certain of the products mentioned also find

Daily Routine

Daily transport orders are notified by the mill at 9.30 a.m. in respect of about half the day's output; the balance will be advised by telephone at intervals up to perhaps 4 p.m. About half the total tonnage must be loaded the same day; there is thus a useful margin with which the traffic office can plan ahead. The traffic advice indicates weight, when ready, loading bay and other relevant information. Planning of the following day's movements begins about 1 p.m. and is substantially completed by about 3.30 p.m. An earlier start is not possible because last-minute alterations can be effected to previously arranged movements during the morning and their consequences cannot be immediately foreseen.

A facsimile of part of a specimen weekly traffic sheet is reproduced on page 12. Three of the eight-wheeled vehicles represented are working between Aylesford and London destinations, the fourth is making a journey to Bristol. This vehicle (No. 16) has been "picked-up" on its return to Aylesford and re-employed on a delivery to Northfleet, an example of the value of forward planning.

Loading Priorities

The C-licensed section of the fleet has first choice of available traffic because of the known and pre-arranged return flows from the north and west already referred to. This applies in like measure to traffic offering to the Thatcham area. No long-

(Continued on page 12)

LORRY—BUS—COACH

Smithfield Conditions Exposed

RETAIL butchers in London complained of delay, expense, discourtesy, restrictive practices and the methods of handling in getting delivery to their vehicles or hired transport of the meat they had bought in Smithfield market, said Sir David Scott Cairns, Q.C., before the inquiry which on Monday opened to investigate "any causes of unrest" in the market. It was not uncommon for butchers to have to wait up to 1½ hr. or more to have meat transported by the self-employed bummarees to their vans outside the market. These porters, whose numbers were limited by unilateral decision, earned not less than £25 a week without gratuities, and without long hours. It was shortly after the ending of meat control by the Ministry of Food in 1954 that the union decided that only licensed porters could carry the meat. The retail butchers maintained that they were entitled to exercise the freedom given to them by the market by-laws to have their meat purchases carried by their own employees. There was no consultation with the butchers before the union imposed its ban.

A retail butcher, a Mr. Durrant, had brought a court action to establish his right to take meat away without using the porters and got judgment in his favour. Subsequently, a Mr. Tribe, an official of the union, had observed: "The butcher said he would, the judge said he could, we said he wouldn't, and he didn't." Mr. E. A. Hornsby, market superintendent, replying to Sir David Scott Cairns, said that under the by-law there was nothing to prevent a butcher exercising his rights to carry his purchases out of the market. The City Corporation would desire to see the by-laws implemented. The Wholesale Meat and Provisions Transport Association, representing the meat carriers, was to give evidence before the inquiry.

Hudson Decision Accepted

NO appeal is to be lodged by the Lincolnshire Road Car Co., Limited, against the decision of the East Midland area Traffic Commissioners in the Hudson's case. It is submitting applications to reduce certain fares to the level proposed in the Commissioners' decision.

Bus Bodies Delivered Late

THE Ceylon Transport Board, having found that local bodybuilders cannot complete the bus bodies for the bus chassis within a specified period, has decided to place orders abroad for completed buses instead of only bus chassis. Shortly after the nationalisation of buses, the Board imported 325 bus chassis. Bodybuilders have up-to-date completed bus bodies for only 73 chassis.

Continental Coach Guide

JUST published is a free supplement to the *ABC Coach and Bus Guide* giving particulars of Continental coach services and also of the various coach-air arrangements between Britain and the Continent. Activities detailed include East Kent connections to Europabus (with connections via London, Dover and Ostend from as far off as Edinburgh and Glasgow to Frankfurt, and via Folkestone—Boulogne to Rheims and Innsbruck), the Linjebuss routes, those of Transcar and the Societa Automobilistica Dolomiti ("where the railways don't pass") and useful network maps are provided. We hope this useful publication will be developed even further next year.

Disabled Driver: No Pay Award

EMPLOYED by a Bristol company of fruit, flower and vegetable salesmen, a C-licensed van driver has failed to establish before the Industrial Court that his remuneration was unreasonably low and that a week's holiday pay should have been paid to him on termination of his services. He contended that his weekly wages were unfair in relation to the rates he believed were paid to similar workers. His employer said he had a physical disability and lacked driving training, also that other drivers handled heavier loads. He had two periods of employment totalling 11 months net but separated by a period of some six weeks. The court's award (No. 2685) was published last week; it is dated March 24.

Transfer from C-Hiring Refused

AN application by Oswald Transport, Limited, Heathfield, Ayr, for a variation of its A-licence to operate two vehicles of 15¾ tons and two trailers of 5 tons to carry stampings and machinery between south-west Scotland and Manchester, Birmingham, South Wales and London has been rejected by the Scottish area Licensing Authority. The application was opposed by Road Services (Caledonian), Limited, Gavin Wilkie, Limited, Glasgow, and the British Transport Commission. Mr. C. McLelland, a director, had indicated that the applicant had hired to Hoover, Limited, under its C-hiring margin. Hoover was now proposing to dispense with its hiring margin and wished the service maintained with A-licensed vehicles. The Scottish Stamping and Engineering Co., Limited, Ayr, gave evidence that hired vehicles had proved less satisfactory. Nine times out of ten, delays and losses were caused by hired vehicles and not by Oswald vehicles. Refusing the application, Mr. Quin said that the evidence presented by the applicants fell far short of the requirements. An appeal is to be lodged.

London Bus Routes: False Alarm

FURTHER information now released by London Transport makes it apparent that virtually all sections of road from which Central buses were announced last week as being withdrawn entirely will be covered by other route changes and reductions of service on some sections will be compensated. Thus, Chancery Lane, which loses its Monday—Friday route 67, will be served by diversion of another route, and the same applies to Romford—Brentwood (where route 86 comes off), Clapham Common—South Wimbledon (route 189) and Passingford Bridge—Ongar (route 123), to quote examples. A complete picture of all route changes is still not available. On Thursday last week, a delegate conference of London busmen agreed "under protest" to accept the award of 5s. per week additional on the wage rates of Country busmen and 7s. 6d. per week on Green Line single-deck coach drivers.

London Transport buses, trolleybuses and coaches have their own loading bay in the new road forming part of the now gyratory traffic system at Hammersmith. It is on the offside in order to be nearer the Broadway and an entrance (open at peak hours only) to Hammersmith District and Piccadilly Underground station. This entrance is on the far side of the bus bay just off our picture

Ambitious Excursion Bid Fails

GRANT of excursion and tour licences to coach operators because they could not get a full load for private parties would be a dangerous principle, said the chairman, Mr. C. R. Hodgson, at a sitting of the South Wales area Traffic Commissioners in Cardiff on Thursday last week. He was considering an application by Fred Jones (Tours), Limited, Aberdare, for licences to operate a total of 49 excursions and tours from Aberdare, Mountain Ash and Glyn Neath. Objections were lodged by Red and White Services, Limited, Associated Motorways, the South Wales Transport Co., Limited, United Welsh Services, Limited, and British Railways. Refusing all the applications, the chairman said: "We have no objection to granting new excursion and tours licences to any operator, but we have regard to the type of operation carried on by the applicant." No evidence of need had been given in respect of the proposed tours to which no objection had been made and there had been strong objection to others.

Meat Pay Claim Discussed Again

WHEN the Joint Industrial Council for the London Meat Carriers on Thursday last week held its first meeting since the Smithfield stoppage to consider the drivers' wage claim, Mr. E. W. Bolton, London regional conciliation officer of the Ministry of Labour, was in attendance. He was present at the request of both sides and met them separately. No date has been fixed for a further meeting.

Motorways: No C.V. Speed Limit

REGULATIONS made by the Minister of Transport this week provide that, with only one important exception, public service and goods vehicles will be allowed to use the new Preston by-pass, Britain's first motorway, without speed restrictions, when it is opened in November. The new regulations, subject to the approval of Parliament, will have legal effect up to August 1, 1959, and will therefore in practice apply only to the Preston by-pass. A final decision on speed limits will be taken in the light of this experience. Vehicles carrying abnormal indivisible loads will be excluded from the motorway except on a limited number of occasions as an experiment.

Bus and Coach Developments

D. T. Davies and Son (Cream Line Service), Tonmawr, applies for a new service between Neath (Victoria Gardens) and Cimla Hospital, via Cimla Crescent and Upper Cimla Road.

London Transport Central bus routes 63, 77A, 196, now traverse an anti-clockwise turning circle at their Kings Cross terminus, via York Way, Goods Way and Pancras Road.

Bath Tramways Motor Co., Limited, proposes that all journeys via Emborough on its Bath—Wells service should be re-routed via Binegar and Gurney Slade.

Royal Blue Express Services, operated by the Southern and Western National companies, is now providing connections with the services of Jersey Airlines. Passengers from London and points on route may connect with the Guernsey service at Eastleigh Airport, Southampton, or with Guernsey and Jersey services at Bournemouth. The latter connections are also available to passengers from points in Devon, Dorset and Somerset. Connections are also offered through Exeter to places in the West Country such as Plymouth, Penzance and St. Austell. By agreement with the Eastern National Omnibus Co., Limited, services from the Clacton and Southend areas have been linked at Victoria Coach Station with those to Bournemouth and the West Country. This arrangement includes the E.N.O.C. Southend—Bournemouth holiday service.

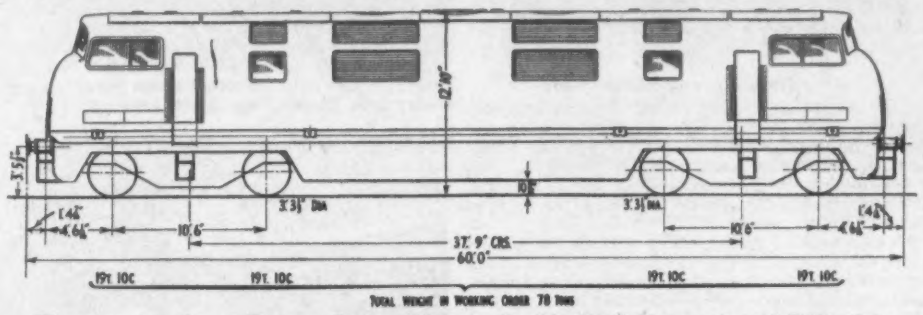
On July 23 London Transport introduced one-man-operated 39-seat RF-type buses on 13 more Country services: 342, 372, 393, 399, 404, 413, 413A, 427, 437, 456, 456B, 462 and 462A. These steps have involved timetable revisions. Other changes include the Saturday afternoon extension of 340B (New Barnet—Welwyn Garden City to Hitchin to cover former short workings on 303 and the abandonment at Watford of peak-hour journeys on 344A and 385A on the Holywell Estate—Tolpits Lane industrial area section. In the Hertford area 342 operates between New Barnet and Hertford only, and the section between Hertford and Broxbourne is covered by extending Route 393 (previously Harlow—Hoddesdon) to Welwyn Garden City (Lemsford Lane) via Route 342 to Hertford and then Route 372. Route 372 is extended from Hertford to Coopersale Common over the former route 399, which has been withdrawn. Route 393 has been diverted in Harlow New Town to serve the new bus station and the GS type replaced by one-man RF-type buses.

SWINDON-BUILT MAIN-LINE DIESEL LOCOMOTIVE

*Engines and Transmission (Cont.)**

THE two Maybach MD 650 type "tunnel" engines employed in Western Region BB-type diesel-hydraulic main-line locomotive D800, *Sir Brian Robertson*, are pressure charged by single-stage exhaust gas turbochargers of Maybach make. These engines have 12 cylinders divided into two banks in V formation. The basis of the engine is the one-piece cast-iron crankcase accommodating the disc-webbed crankshaft. The roller main bearings are mounted on the crankwebs, the outer races being mounted in the annular walls of the crankcase. The crankshaft with the roller bearings is introduced into the crankcase from the front end of the engine; hence the designation "tunnel" engine. The pistons have detachable heads and are cooled by pressure oil, supplied through telescopic pipes mounted on spherical joints.

A continuous flow of oil is circulated through the cavity between piston skirt and crown, resulting in intensive cooling of the piston ring lands. A special heat exchanger is provided for cooling the piston oil. This feature contributes to the very low cylinder wear rate of these engines. The piston rings are contained in the detachable head, which has the advantage that, when inspecting or changing the rings, it is only necessary to remove the piston head after removing the cylinder head. It is, therefore, not necessary to dismantle the piston and connecting rod. The wet piston liners are interchangeable.



Elevation drawing of Western Region BB-type diesel-hydraulic locomotive of D800 class

LEADING FEATURES OF D800 CLASS

Diesel engines (two)	Maybach MD 650 vee-type turbo-pressure charged	Transmissions (two per loco.)	Mekydro Type K104
Rated output per engine	1,056 b.h.p. at 1,400 r.p.m. (first three locos.) 1,152 b.h.p. at 1,530 r.p.m. (subsequent locos.)	Maximum rating of each	966 h.p. at 1,400 r.p.m. input 1,035 h.p. at 1,530 r.p.m. input
Cycle	Four-stroke	Number of gears (forward and reverse)	Four
No. of cylinders per engine	12	Final drive	Maybach Type C33
Cylinder bore	185 mm. (7.283 in.)	Electrical control system	Brown-Boveri
Piston stroke	200 mm. (7.874 in.)	Cooling system	
Valves per cylinder	Three inlet, three exhaust	—Radiator unit	Serck Radiators, Limited
Supercharger	Maybach	—Hydraulic fan drive	Serck-Behr
Injectors	L'Orange	Brake equipment	Laycock, Limited
Main bearings	Roller	—Type	Laycock-Knorr vacuum controlled straight air brake
Big end bearings	Plain	—Air compressor	Knorr type VV 100/100 G.B.
Fuel consumption (approx.)	.375 lb./b.h.p.hr.	—Vacuum exhauster (two per loco.)	Westinghouse type 4 V110
Lubricating oil consumption	1.5-2 gr./b.h.p.hr.	Train heating boiler	Spanner type of 2,000 lb. per hr. capacity
Weight per engine	10,250 lb.		

They are simple and compact, and have been designed with a view to complete reliability and durability. The drive casing is of cast steel, and the bevel wheels are spiral-toothed, the driving pinion being supported on both sides. A gear-type twin pump is provided, situated within the base of the casing, for lubrication of the gear wheels and roller bearings in both directions of running. The reaction torque is taken through torque arms and rubber blocks to the bogie frame.

A dynostarter situated in each nose of the locomotive is provided for each engine, and is driven through a Hardy-Spicer cardan shaft incorporating a Layrub flexible coupling from an auxiliary driving flange on the transmission. When acting as a generator, the dynostarter supplies current at a maximum voltage of 135 at no load down to approximately 120 volts at maximum load on the first three locomotives; this will be changed to a constant voltage of 110 for future locomotives. The current is used for engine speed control, supplying the various auxiliaries and charging the battery. When acting as starter, the starting current is drawn from a 56-cell lead-acid battery.

Cylinder Heads

The individual cylinder heads each have three inlet and three exhaust valves. The two camshafts for each bank of cylinders are housed in a common cylinder head top which may be lifted as an integral unit. All the rocker arms have an automatic hydraulic adjustment, which ensures at all times that no backlash is present in the valve motion. The injectors combine the pump and injection valve in a single unit, and were developed jointly by the firms of L'Orange and Maybach.

Maybach engine being prepared for dropping in to Western Region locomotive D800 in the erecting shop at Swindon and, right, Mekydro transmission

Engine lubrication is by means of a mechanically driven pump situated in the sump; to ensure adequate lubrication at starting, an electrically operated priming pump is provided, which is started as soon as the engine starting switch is operated, and only when the oil pressure in the engine has reached a predetermined amount is the dynostarter brought into action. The engine speed control is electrical and six speed notches are provided, the actual speeds being readily adjustable if required.

Mekydro Transmission

Two Maybach Mekydro Type K104 hydraulic transmissions are fitted, each driven through a cardan shaft from its appropriate diesel engine. The cardan shaft is similar to that used on the V200 locomotives. The K104 transmission has four speeds and consists essentially of a single torque converter permanently filled with oil, together with mechanical change gears in permanent mesh. The actual gearchanging is accomplished by means of special over-running dog clutches, which are so designed that engagement is effected with little noise or wear.

The necessary torque relief while gearchanging is obtained by withdrawing the turbine blades of the converter in an axial direction. This is done automatically by hydraulic pressure. The control mechanism for gearchanging is oil-pressure operated, and initiates the change fully automatically in relation to the locomotive and engine speeds. The reverse gears are contained within the transmission casing, the direction of change being controlled by electro-hydraulic means. If the reversing handle in the cab is operated while moving, no forward or reverse gearchange is made until the locomotive comes to rest.

Final Drive

The drive from each hydraulic transmission to the axle-mounted gearboxes is through two cardan shafts each having two universal joints. These cardan shafts are also similar to those used on the V200 locomotives. The final drive gearboxes are of Maybach Type C33 design and construction.

Cooling System

The Serck radiator, cooling fan and motor, header tank and associated pipes are supplied as a complete unit for each engine. The unit is placed into position in the locomotive through one of the roof hatches, and is carried on a rubber mounting strip which completely surrounds the unit at header tank level. The fan drive, cooling water temperature control and shutter actuating device are of particular interest, being the first of their type on a main-line locomotive in this country. The fan is driven by a hydraulic motor using oil at a pressure of 1,500 lb. per sq. in. The pressure is supplied by means of a hydraulic pump which is an exact replica of the motor, and which is driven directly from the free end of the diesel engine through two Layrub flexible couplings.

The pressure of oil to the motor and hence the speed of the fan is controlled by means of a thermostatic valve situated in the cooling water system. In addition, movable shutters are provided on the outside of the radiator units, controlling the flow of air through the units. The shutters are actuated by means of hydraulic cylinders, the pressure of oil

(*Continued on page 6*)

* Previous portion appeared July 19.

Swindon-Built Diesel Locomotive

(*Continued from page 5*)

in the cylinders being controlled by the thermostatic valve controlling the fan motor speed. The normal cooling water temperature is approximately 170 deg. F. The cooling water circuit includes the engine, lubricating oil and piston cooling oil heat exchangers, also the transmission torque converter and torque converter oil heat exchanger. Means for heating the cooling water is provided, and normally the engines cannot be started until the water temperature has reached 130 deg. F. This is done to reduce cylinder wear.

Brake Equipment

A Laycock-Knorr vacuum-controlled straight air brake system is fitted, in which the driver's vacuum brake valve applies the train brake and makes a proportional application of the locomotive air brake. By means of the driver's air brake valve the locomotive brake only can be applied. A "passenger or goods" cock is provided in each cab, by means of which, when placed in the "goods" position, the normal proportional brake application is slowed down. This is for use when hauling an unbraked or partially braked train and prevents the unbraked stock from running violently into the locomotive or braked portion of the train.

A deadman's system of brake application is also included, by means of which the locomotive and train brakes are applied if the driver does not press down a pedal or the main control handle. On release of either of these a brake application is made after a delay of about five seconds. The application is in two stages, between which a delay occurs, allowing "bunching" of the train before the brake is fully applied. When a deadman's brake application is made the engines are automatically reduced to idling speed. Compressed air is also used for sanding and operation of the windscreen wipers.

Automatic Train Control

The Western Region system of automatic train control is fitted. In this system a steel shoe on the locomotive makes mechanical contact with a fixed ramp associated with the distant signal. If the signal is at "clear" the bell sounds in the cab; if at "caution" the siren warning is given to the driver and the brakes are partially applied. If the driver acknowledges the warning by resetting the apparatus in the cab the partial brake application is cancelled. But if for any reason this is not done within a certain time the brake application is completed by the emergency automatic brake valve (the action of which cannot be cancelled by the driver) in a manner which brings the train to rest as quickly and safely as possible according to the type of train being hauled. By means of the locomotive's brake equipment the air brake is proportionally applied on the locomotive and power is cut off automatically when the train pipe vacuum falls to a predetermined value.

The selection and application of the emergency braking appropriate to each type of train is fully automatic as the emergency automatic brake valve (which was developed recently at Swindon) functions in parallel with any partial brake application which is not initiated by the driver. It responds also to the opening of a passenger communication valve in any part of the train when it brings the train to rest in a manner similar to that initiated by an unacknowledged a.t.c. warning.

The internal lighting can be supplied either from the battery or the dynostarter and may also be connected to an external supply of 200-250 volts a.c. through a change-over switch and a step-down transformer. The code lights work at a pressure of 24 volts. Headlamp points are provided for inspection purposes.

Controls

A comprehensive system of electrical controls and warning devices is fitted. The main controls, warning lamps, gauges and brake handles are grouped conveniently together in the driver's desk, while other gauges and warning lamps not necessary for driving purposes are situated on the other side of the cab. The main controller or power handle is the only one used by the driver, apart from the brake handle, for controlling the speed of the locomotive, as all gearchanging is done automatically. The reversing handle, which is removable in the neutral position, is used as a master switch, and when in this position all controls are disconnected. The engines are started up with the reversing handle in either the forward or reverse position, and the power handle may then be used for controlling the speed of the engines, but no power is transmitted to the road wheels until the power switch is operated. Only one reversing handle is used, even when locomotives are working in multiple, and in this way unoccupied cabs are made safe.

Automatic safeguards protect the engines and transmissions against excessive oil temperatures and the engine against loss of oil pressure, loss or excessive temperature of cooling water, and overspeeding. Two general warning lights, one for the engines and one for the transmissions, indicate to the driver if a fault has developed in any of these units, whether working singly or in multiple. The actual engine or transmission at fault is indicated by warning lights on the right-hand side of the cab, each cab containing the warning lights for the engine and transmission nearest to it. Instruments on the driver's desk indicate locomotive speed, degree of vacuum and air pressure. Others indicate the engine lubricating and transmission oil temperatures, cooling water temperature and engine speed of the particular engine and transmission situated nearest the cab in which the instruments are placed. Failure of air pressure or vacuum brings the speed of all engines to idling. When working in multiple the control between the locomotives is through electric jumper cables and air and vacuum hoses.

Train Heating Boiler

The locomotive is fitted with a Spanner boiler situated in the centre compartment. After the initial lighting up the boiler is completely automatic and adequate safeguards are provided. The working pressure is 80 lb. per sq. in. The same fuel is used as for the diesel engine and, in fact, is carried in the same tanks.

Comprehensive fire fighting apparatus is provided for both automatic and hand operation. The equipment for each engine consists of a spring-loaded discontinuous wire connected to a shut-off valve in the fuel line. Joining the wire and situated immediately above the engine is a fusible metallic strip which melts on the application of sufficient heat, shutting the fuel valve and ringing the electric warning bell situated in the cab. The wire may also be actuated manually from the cab by means of a handle. To give warning of fire in the boiler-room a Sunvic detector is used which also rings the bell in the cab. For the actual fire fighting, three 50-lb. cylinders containing liquid CO_2 are provided, connected to spray nozzles situated in suitable positions. The CO_2 can be released by means of handles situated in either cab and in two glass-fronted boxes accessible from outside the locomotive. In addition, two hand-type CO_2 extinguishers and one C.T.C. extinguisher are carried in each cab.

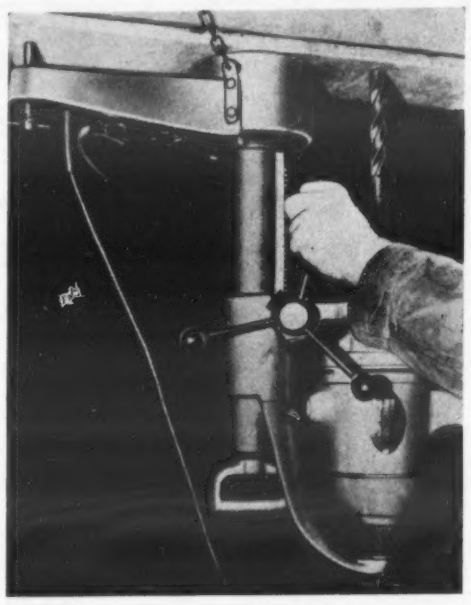
The water for the train-heating boiler is carried in two tanks of equal capacity situated in the body of the locomotive under the cooling units. The fuel for the engines and boiler is carried in four tanks of equal capacity below the deckplate between the inner axles of the bogies, in spaces formed by the plates of the underframe. All these tanks are formed of mild-steel plate and are of all-welded construction.

★

MAGNETIC DRILL STAND

Useful Wolf—H. and S. Gear

MANY situations in vehicle and equipment repair and maintenance can be envisaged for Wolf-H. and S. magnetic drill stands introduced by Wolf Electric Tools, Limited. The equipment follows general precision drill press lines as regard column and headstock but the base is of special design and construction to house powerful built-in electro-magnets. These are centred directly



Wolf-H. and S. magnetic drill stand in use on overhead drilling

underneath the column and are controlled by a protected two-stage switch alongside. This provides a hold value for accurate positioning of the equipment in relation to the point of drilling before the operation is commenced. The switch is then advanced to the drill position, when the magnets become fully energised and the tool is brought into circuit with the line voltage.

Immense Pull

Immense magnetic pull enables the Wolf drill to be operated on full load and at maximum capacity, while positive rack and pinion feed ensures precision results with minimum effort. The headstock can be swung around the column for sideways adjustment by releasing the handle on top of the column. This handle is also useful for carrying purposes. The possibility of a power failure is guarded against by a strong safety chain. A saddle to enable the stands to be used for drilling pipes and curved surfaces is available. Two specifications are available—FP5 with a capacity in steel of $\frac{3}{8}$ in. and FP6 with $\frac{1}{2}$-in. capacity. Magnetic hold value of FP5 is 800 lb. and of FP6 950 lb.; both have $8\frac{3}{4}$-in. depth of feed and are available suitable for various mains voltages.

★

AIR CONDITIONING

Compact Marine Unit

WITH a claim to being the most compact ever produced for marine work, a range of self-contained air conditioning units is being introduced by Thermotank, Limited, Helen Street, Glasgow. The range, known as Series P, comprises two water-cooled units and two air-cooled units, all of which have been proved under the most arduous tropical working conditions. They have been designed for low-cost full-air conditioning of selected spaces and the capacity of a single unit is claimed to be adequate to deal with the average ship's cabin. The approximate overall dimensions of the water-cooled versions are 28 in. long, 14 in. high and $11\frac{1}{2}$ in. deep—the air-cooled units have the same fascia size but are 7 in. deeper. The casing is acoustically as well as thermally insulated to ensure quiet operation and is fitted with attachment bars to facilitate surface mounting on a wall or bulkhead.

Each unit incorporates a hermetically sealed motor-compressor operating on Freon 22 refrigerant, cooling coil, washable nylon-mesh air filter, thermostat and a rotatable 10-in. diameter air discharge grille for draughtless diffusion of the air after it has been filtered, cooled and dehumidified. Operation can be on a.c. power supply or on a d.c. supply through a rotary converter. The water-cooled units are designed to operate with seawater temperatures up to 90 deg. F. and the air-cooled versions with a maximum ambient temperature of 120 deg. F. An illustrated leaflet is available from the manufacturer.

Formation of harmful residues in fuel oil storage tanks is being prevented or reduced to harmless levels through addition of small amounts of a chemical developed by the Du Pont Company, it is claimed. It is already in wide use in the United States. In addition, the new product, called Du Pont Fuel Oil Additive No. 2, has been used at higher than normal concentrations to remove accumulated deposits without interfering with normal operations.

MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

BRISTOL FREIGHTER MODIFIED

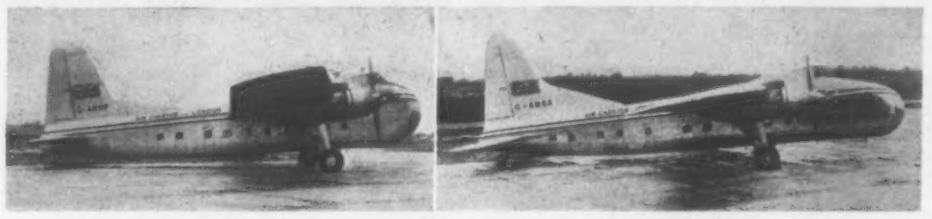
By Operator for Ferry Routes

RECENTLY Air Charter, Limited, completed the conversion of the first of its three Bristol 170 Mark 31s to Mark 32 specifications. The aircraft operate on the Channel Air Bridge services from Southend to Rotterdam, Calais and Ostend; it is proposed to convert the other two shortly.

The aircraft is now similar to the production Mark 32. The new nose and tail sections which have been fitted make the freight hold 10 ft. longer, while the passenger compartment has been extended by 6 ft. so that the aircraft can now carry three cars and 16 passengers or, by quick conversion, two cars and 24 passengers. The height of the forward hold is now 7 ft. 4 in. as opposed to 6 ft. 8 in. and the undercarriage has been strengthened and lowered 6 in.

Two modifications have been made by Air Charter itself. Two microswitches are fitted to the loading doors, making it impossible to start the engines if the doors are not properly closed, when a red warning light also appears in front of the pilot. Goodyear disc brakes are fitted. In the passenger compartment the seats are in treble and single units and some are rearward facing. Furnishings and seat upholstery are in maroon and grey washable Vynide, which covers plastics foam filling. These new seats contribute a weight saving of 230 lb. for the aircraft. All work in connection with the conversion was carried out by Aviation Traders (Eng.), Limited, an associate of Air Charter.

June traffic figures for the Channel Air Bridge were the highest yet with 2,130 vehicles, 7,300 passengers and 1,168 tons of freight flown. It was stated that in the first six months of this year the services from Southend to Calais, Ostend and Rotterdam had carried 25 per cent more vehicles and 100 per cent more passengers and freight than in the similar period last year. The chairman, Mr. F. Laker, said recently that the company had expected to carry some 25,000 cars and 100,000 passengers on its services this year. Already it had bookings for 20,000 vehicles and 80,000 passengers and as applications for car bookings were now being received at the rate of 250 a day it looked as if it would pass its target handsomely. By June 29 the fleet of nine Bristol Freighters had flown half a million miles this year and made 3,532 Channel crossings.



One of the Bristol 170 Mark 31 aircraft used by Air Charter on its services contrasted with the Mark 32 evolved by the company from a sister aircraft

Versatility of the Helicopter

ROTOR BLADE TEST TOWER BUILT

MEN handling giant excavating machinery on the 53-mile Luton—Dunchurch stretch of the new London—Yorkshire Motorway scarcely bother to look up now as a scarlet and silver Bristol Sycamore helicopter sweeps overhead. For a number of weeks John Laing and Son, Limited, the contractor, has been using the aircraft as a link in its chain of communications up and down the length of the motorway—one of the few times that a helicopter has ever been used in the United Kingdom on a major civil engineering project. It may be recalled that to carry out the contract the company put a labour force of more than three thousand men on the job, and some £5 million worth of equipment is being used.

Before the 2½ million sq. yd. of asphalt and tar macadam can be laid on the stone and concrete foundations, 12 million cu. yd. of earth has to be excavated and over 250,000 tons of concrete and 12,000 tons of steel reinforcement will be needed to build the 130 bridges, which include six major flyovers, along the motorway. A quick survey of such a vast undertaking is impossible by conventional means, as much of the road passes through remote countryside inaccessible by existing roads.

Mr. John Michie, general manager in charge of operations, feels that the Sycamore has provided

The Bristol Sycamore flying over a scraper preparing the ground for the London—Yorkshire Motorway

the answer to this problem. Flown by Bristol helicopter test pilot Mr. R. Smith at the controls, Mr. Michie can take off from the small landing site just outside his headquarters at Newport Pagnell, fly over the whole project and be back at his office desk 90 min. later. To do a similar survey by car could take him the better part of four days.

A Great Boon

"We have had to organise this business more or less on military lines—as if we were doing a reconnaissance over a battle area," said Mr. Michie. "Having the Sycamore is a great boon, as we can marry up the paper work with what is actually going on. The road is divided into four main sections of roughly 12 miles each. If anything crops up on one of the sections the section manager and I can take a flight over the trouble spot and sort things out there and then. We have found it particularly useful in deploying equipment, flood-spotting and impromptu conferences on the sites—it is just a question of putting the helicopter down where we need it."

A series of landing sites has been built near the main section headquarters offices, and the Sycamore calls at these to pick up mail or put down passengers. Landing facilities are also available at the Laing sports field at Elstree, and executives can be flown over the entire course of the motorway and back to London again in less than 3½ hr. Spare parts needed in a hurry can easily be flown up from the company's plant depot at Elstree, too, and special arrangements have been made to fly the aircraft direct to prearranged landing sites nearby, should urgent medical attention be required.

This use of the Sycamore illustrates the ever-increasing number of roles played by British helicopters and the reliance placed on this type of aircraft in emergency operations, which call for the highest standard of inspection and testing. To this end, a new rotor blade test tower has been designed and built by Bristol Aircraft, Limited, to speed the testing of production rotor blades. The tower—an octagonal steel and concrete truncated cone, 18 ft. high and with a diameter of 6 ft. 6 in. at the top and 20 ft. at the base—is one of the few towers to be built solely for production testing.

The tower represents the hovering condition and as the control systems of individual aircraft vary within small limits the final adjustments can only be made after flight testing. Nevertheless the value of preflight testing the aerodynamic profile, lift, out-of-balance and tracking characteristics is appreciable in that it enables a stock of fully tested blades and hubs to be maintained for spares and speeds the clearance of damaged blades returned for overhaul and repair.

Wooden and Metal Blades

Both wooden and metal blades are tested on the tower and although wooden blades have proved excellent in service the metal blades have certain advantages over the wooden blade, namely—greater service life, better surface finish, easier production to a standard, easier repair and no change of characteristic with humidity. The changes which take place in a wooden blade with humidity make it extremely difficult to manufacture a standard blade and it is normal practice to make wooden rotors in sets of three or four blades in which it is not possible to change blades, in the matched sets, at random. The making of a master metal blade, however, is relatively simple and single blades, required as replacements, can be tested and adjusted against master blades without the necessity of testing a complete set.

Rotor thrust (lift), the power absorbed by the rotor, collective pitch (incidence angle of the blades), rotor revolutions per minute, blade pitching moment (rotor out-of-balance force) and tracking (blade position at tip-path-plain) are characteristics on which test results are recorded on control desks designed by Bristol Aircraft and collated by operators who work in the control room built into the base of the tower. The Crompton Parkinson 400-b.h.p. d.c. main motor and the blower motor starter are also in the tower base.

Varied Speed Requirements

The drive to the rotor is from the main motor via a gearbox and a vertical drive shaft with a standard rotor hub at its upper end. A mixed Ward Leonard and shunt control system is used to control the speed of the motor over a range 80-1,264 r.p.m. The Ward Leonard control is used for the low speed requirement—80 to 800 r.p.m.—because it is a convenient and economical way of obtaining slow speeds and a wide range of speeds, at constant torque. From 800 to 1,264 r.p.m. the full 400 b.h.p. of the motor is available.

The constant speed motor generator set, comprising an auto-synchronous motor and exciter and a generator and its exciter—all mounted on a common bedplate, runs at 1,000 r.p.m. The motor generator set and its control gear, which includes an Allen West circuit breaker and liquid starter and a d.c. contactor panel which is controlled from the tower, are housed in a substation on a site adjacent to the tower. The autosynchronous motor is supplied from 420 volt, three-phase, 50 c/s and is designed to operate at .95 leading power factor. To facilitate work when changing the rotor blades, a working platform which may be raised or lowered electrically, is powered from a point external to the tower. Safety devices are incorporated in the driving motor circuits to ensure that the rotor blades cannot be set in motion when work is in progress on the blades. In the main, it is blades for the Bristol Sycamore helicopter which are tested on the tower.

Swindon-Built Diesel Locomotive

(*Continued from page 5*)

in the cylinders being controlled by the thermostatic valve controlling the fan motor speed. The normal cooling water temperature is approximately 170 deg. F. The cooling water circuit includes the engine, lubricating oil and piston cooling oil heat exchangers, also the transmission torque converter and torque converter oil heat exchanger. Means for heating the cooling water is provided, and normally the engines cannot be started until the water temperature has reached 130 deg. F. This is done to reduce cylinder wear.

Brake Equipment

A Laycock-Knorr vacuum-controlled straight air brake system is fitted, in which the driver's vacuum brake valve applies the train brake and makes a proportional application of the locomotive air brake. By means of the driver's air brake valve the locomotive brake only can be applied. A "passenger or goods" cock is provided in each cab, by means of which, when placed in the "goods" position, the normal proportional brake application is slowed down. This is for use when hauling an unbraked or partially braked train and prevents the unbraked stock from running violently into the locomotive or braked portion of the train.

A deadman's system of brake application is also included, by means of which the locomotive and train brakes are applied if the driver does not press down a pedal or the main control handle. On release of either of these a brake application is made after a delay of about five seconds. The application is in two stages, between which a delay occurs, allowing "bunching" of the train before the brake is fully applied. When a deadman's brake application is made the engines are automatically reduced to idling speed. Compressed air is also used for sanding and operation of the windscreen wipers.

Automatic Train Control

The Western Region system of automatic train control is fitted. In this system a steel shoe on the locomotive makes mechanical contact with a fixed ramp associated with the distant signal. If the signal is at "clear" the bell sounds in the cab; if at "caution" the siren warning is given to the driver and the brakes are partially applied. If the driver acknowledges the warning by resetting the apparatus in the cab the partial brake application is cancelled. But if for any reason this is not done within a certain time the brake application is completed by the emergency automatic brake valve (the action of which cannot be cancelled by the driver) in a manner which brings the train to rest as quickly and safely as possible according to the type of train being hauled. By means of the locomotive's brake equipment the air brake is proportionally applied on the locomotive and power is cut off automatically when the train pipe vacuum falls to a predetermined value.

The selection and application of the emergency braking appropriate to each type of train is fully automatic as the emergency automatic brake valve (which was developed recently at Swindon) functions in parallel with any partial brake application which is not initiated by the driver. It responds also to the opening of a passenger communication valve in any part of the train when it brings the train to rest in a manner similar to that initiated by an unacknowledged a.t.c. warning.

The internal lighting can be supplied either from the battery or the dynostarter and may also be connected to an external supply of 200-250 volts a.c. through a change-over switch and a step-down transformer. The code lights work at a pressure of 24 volts. Headlamp points are provided for inspection purposes.

Controls

A comprehensive system of electrical controls and warning devices is fitted. The main controls, warning lamps, gauges and brake handles are grouped conveniently together in the driver's desk, while other gauges and warning lamps not necessary for driving purposes are situated on the other side of the cab. The main controller or power handle is the only one used by the driver, apart from the brake handle, for controlling the speed of the locomotive, as all gearchanging is done automatically. The reversing handle, which is removable in the neutral position, is used as a master switch, and when in this position all controls are disconnected. The engines are started up with the reversing handle in either the forward or reverse position, and the power handle may then be used for controlling the speed of the engines, but no power is transmitted to the road wheels until the power switch is operated. Only one reversing handle is used, even when locomotives are working in multiple, and in this way unoccupied cabs are made safe.

Automatic safeguards protect the engines and transmissions against excessive oil temperatures and the engine against loss of oil pressure, loss or excessive temperature of cooling water, and overspeeding. Two general warning lights, one for the engines and one for the transmissions, indicate to the driver if a fault has developed in any of these units, whether working singly or in multiple. The actual engine or transmission at fault is indicated by warning lights on the right-hand side of the cab, each cab containing the warning lights for the engine and transmission nearest to it. Instruments on the driver's desk indicate locomotive speed, degree of vacuum and air pressure. Others indicate the engine lubricating and transmission oil temperatures, cooling water temperature and engine speed of the particular engine and transmission situated nearest the cab in which the instruments are placed. Failure of air pressure or vacuum brings the speed of all engines to idling. When working in multiple the control between the locomotives is through electric jumper cables and air and vacuum hoses.

Train Heating Boiler

The locomotive is fitted with a Spanner boiler situated in the centre compartment. After the initial lighting up the boiler is completely automatic and adequate safeguards are provided. The working pressure is 80 lb. per sq. in. The same fuel is used as for the diesel engine and, in fact, is carried in the same tanks.

Comprehensive fire fighting apparatus is provided for both automatic and hand operation. The equipment for each engine consists of a spring-loaded discontinuous wire connected to a shut-off valve in the fuel line. Joining the wire and situated immediately above the engine is a fusible metallic strip which melts on the application of sufficient heat, shutting the fuel valve and ringing the electric warning bell situated in the cab. The wire may also be actuated manually from the cab by means of a handle. To give warning of fire in the boiler-room a Sunvic detector is used which also rings the bell in the cab. For the actual fire fighting, three 50-lb. cylinders containing liquid CO_2 are provided, connected to spray nozzles situated in suitable positions. The CO_2 can be released by means of handles situated in either cab and in two glass-fronted boxes accessible from outside the locomotive. In addition, two hand-type CO_2 extinguishers and one C.T.C. extinguisher are carried in each cab.

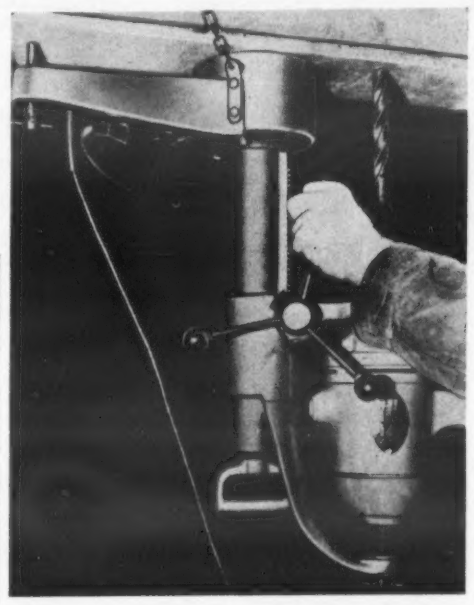
The water for the train-heating boiler is carried in two tanks of equal capacity situated in the body of the locomotive under the cooling units. The fuel for the engines and boiler is carried in four tanks of equal capacity below the deckplate between the inner axles of the bogies, in spaces formed by the plates of the underframe. All these tanks are formed of mild-steel plate and are of all-welded construction.

★

MAGNETIC DRILL STAND

Useful Wolf—H. and S. Gear

MANY situations in vehicle and equipment repair and maintenance can be envisaged for Wolf-H. and S. magnetic drill stands introduced by Wolf Electric Tools, Limited. The equipment follows general precision drill press lines as regard column and headstock but the base is of special design and construction to house powerful built-in electro-magnets. These are centred directly



Wolf-H. and S. magnetic drill stand in use on overhead drilling

underneath the column and are controlled by a protected two-stage switch alongside. This provides a hold value for accurate positioning of the equipment in relation to the point of drilling before the operation is commenced. The switch is then advanced to the drill position, when the magnets become fully energised and the tool is brought into circuit with the line voltage.

Immense Pull

Immense magnetic pull enables the Wolf drill to be operated on full load and at maximum capacity, while positive rack and pinion feed ensures precision results with minimum effort. The headstock can be swung around the column for sideways adjustment by releasing the handle on top of the column. This handle is also useful for carrying purposes. The possibility of a power failure is guarded against by a strong safety chain. A saddle to enable the stands to be used for drilling pipes and curved surfaces is available. Two specifications are available—FP5 with a capacity in steel of $\frac{3}{4}$ in. and FP6 with $\frac{1}{4}$-in. capacity. Magnetic hold value of FP5 is 800 lb. and of FP6 950 lb.; both have $8\frac{3}{4}$-in. depth of feed and are available suitable for various mains voltages.

★

AIR CONDITIONING

Compact Marine Unit

WITH a claim to being the most compact ever produced for marine work, a range of self-contained air conditioning units is being introduced by Thermotank, Limited, Helen Street, Glasgow. The range, known as Series P, comprises two water-cooled units and two air-cooled units, all of which have been proved under the most arduous tropical working conditions. They have been designed for low-cost full-air conditioning of selected spaces and the capacity of a single unit is claimed to be adequate to deal with the average ship's cabin. The approximate overall dimensions of the water-cooled versions are 28 in. long, 14 in. high and $11\frac{1}{2}$ in. deep—the air-cooled units have the same fascia size but are 7 in. deeper. The casing is acoustically as well as thermally insulated to ensure quiet operation and is fitted with attachment bars to facilitate surface mounting on a wall or bulkhead.

Each unit incorporates a hermetically sealed motor-compressor operating on Freon 22 refrigerant, cooling coil, washable nylon-mesh air filter, thermostat and a rotatable 10-in. diameter air discharge grille for draughtless diffusion of the air after it has been filtered, cooled and dehumidified. Operation can be on a.c. power supply or on a d.c. supply through a rotary converter. The water-cooled units are designed to operate with seawater temperatures up to 90 deg. F. and the air-cooled versions with a maximum ambient temperature of 120 deg. F. An illustrated leaflet is available from the manufacturer.

Formation of harmful residues in fuel oil storage tanks is being prevented or reduced to harmless levels through addition of small amounts of a chemical developed by the Du Pont Company, it is claimed. It is already in wide use in the United States. In addition, the new product, called Du Pont Fuel Oil Additive No. 2, has been used at higher than normal concentrations to remove accumulated deposits without interfering with normal operations.

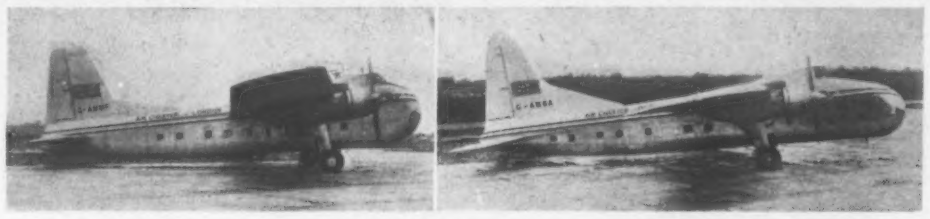
MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

BRISTOL FREIGHTER MODIFIED

By Operator for Ferry Routes

RECENTLY Air Charter, Limited, completed the conversion of the first of its three Bristol 170 Mark 31s to Mark 32 specifications. The aircraft operate on the Channel Air Bridge services from Southend to Rotterdam, Calais and Ostend; it is proposed to convert the other two shortly.

The aircraft is now similar to the production Mark 32. The new nose and tail sections which have been fitted make the freight hold 10 ft. longer, while the passenger compartment has been extended by 6 ft. so that the aircraft can now carry three cars and 16 passengers or, by quick conversion, two cars and 24 passengers. The height of the forward hold is now 7 ft. 4 in. as opposed to 6 ft. 8 in. and the undercarriage has been strengthened and lowered 6 in.



One of the Bristol 170 Mark 31 aircraft used by Air Charter on its services contrasted with the Mark 32 evolved by the company from a sister aircraft

Two modifications have been made by Air Charter itself. Two microswitches are fitted to the loading doors, making it impossible to start the engines if the doors are not properly closed, when a red warning light also appears in front of the pilot. Goodyear disc brakes are fitted. In the passenger compartment the seats are in treble and single units and some are rearward facing. Furnishings and seat upholstery are in maroon and grey washable Vynide, which covers plastics foam filling. These new seats contribute a weight saving of 230 lb. for the aircraft. All work in connection with the conversion was carried out by Aviation Traders (Eng.), Limited, an associate of Air Charter.

June traffic figures for the Channel Air Bridge were the highest yet with 2,130 vehicles, 7,300 passengers and 1,168 tons of freight flown. It was stated that in the first six months of this year the services from Southend to Calais, Ostend and Rotterdam had carried 25 per cent more vehicles and 100 per cent more passengers and freight than in the similar period last year. The chairman, Mr. F. Laker, said recently that the company had expected to carry some 25,000 cars and 100,000 passengers on its services this year. Already it had bookings for 20,000 vehicles and 80,000 passengers and as applications for car bookings were now being received at the rate of 250 a day it looked as if it would pass its target handsomely. By June 29 the fleet of nine Bristol Freighters had flown half a million miles this year and made 3,532 Channel crossings.

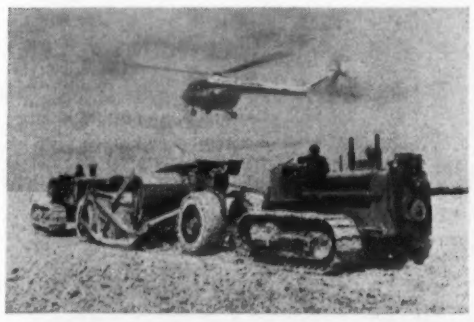
Versatility of the Helicopter

ROTOR BLADE TEST TOWER BUILT

MEN handling giant excavating machinery on the 53-mile Luton—Dunchurch stretch of the new London—Yorkshire Motorway scarcely bother to look up now as a scarlet and silver Bristol Sycamore helicopter sweeps overhead. For a number of weeks John Laing and Son, Limited, the contractor, has been using the aircraft as a link in its chain of communications up and down the length of the motorway—one of the few times that a helicopter has ever been used in the United Kingdom on a major civil engineering project. It may be recalled that to carry out the contract the company put a labour force of more than three thousand men on the job, and some £5 million worth of equipment is being used.

Before the 2½ million sq. yd. of asphalt and tar macadam can be laid on the stone and concrete foundations, 12 million cu. yd. of earth has to be excavated and over 250,000 tons of concrete and 12,000 tons of steel reinforcement will be needed to build the 130 bridges, which include six major flyovers, along the motorway. A quick survey of such a vast undertaking is impossible by conventional means, as much of the road passes through remote countryside inaccessible by existing roads.

Mr. John Michie, general manager in charge of operations, feels that the Sycamore has provided



The Bristol Sycamore flying over a scraper preparing the ground for the London—Yorkshire Motorway

the answer to this problem. Flown by Bristol helicopter test pilot Mr. R. Smith at the controls, Mr. Michie can take off from the small landing site just outside his headquarters at Newport Pagnell, fly over the whole project and be back at his office desk 90 min. later. To do a similar survey by car could take him the better part of four days.

A Great Boon

"We have had to organise this business more or less on military lines—as if we were doing a reconnaissance over a battle area," said Mr. Michie. "Having the Sycamore is a great boon, as we can marry up the paper work with what is actually going on. The road is divided into four main sections of roughly 12 miles each. If anything crops up on one of the sections the section manager and I can take a flight over the trouble spot and sort things out there and then. We have found it particularly useful in deploying equipment, flood-spotting and impromptu conferences on the sites—it is just a question of putting the helicopter down where we need it."

A series of landing sites has been built near the main section headquarters offices, and the Sycamore calls at these to pick up mail or put down passengers. Landing facilities are also available at the Laing sports field at Elstree, and executives can be flown over the entire course of the motorway and back to London again in less than 3½ hr. Spare parts needed in a hurry can easily be flown up from the company's plant depot at Elstree, too, and special arrangements have been made to fly the aircraft direct to prearranged landing sites nearby, should urgent medical attention be required.

This use of the Sycamore illustrates the ever-increasing number of roles played by British helicopters and the reliance placed on this type of aircraft in emergency operations, which call for the highest standard of inspection and testing. To this end, a new rotor blade test tower has been designed and built by Bristol Aircraft, Limited, to speed the testing of production rotor blades. The tower—an octagonal steel and concrete truncated cone, 18 ft. high and with a diameter of 6 ft. 6 in. at the top and 20 ft. at the base—is one of the few towers to be built solely for production testing.

The tower represents the hovering condition and as the control systems of individual aircraft vary within small limits the final adjustments can only be made after flight testing. Nevertheless the value of preflight testing the aerodynamic profile, lift, out-of-balance and tracking characteristics is appreciable in that it enables a stock of fully tested blades and hubs to be maintained for spares and speeds the clearance of damaged blades returned for overhaul and repair.

Wooden and Metal Blades

Both wooden and metal blades are tested on the tower and although wooden blades have proved excellent in service the metal blades have certain advantages over the wooden blade, namely—greater service life, better surface finish, easier production to a standard, easier repair and no change of characteristic with humidity. The changes which take place in a wooden blade with humidity make it extremely difficult to manufacture a standard blade and it is normal practice to make wooden rotors in sets of three or four blades in which it is not possible to change blades, in the matched sets, at random. The making of a master metal blade, however, is relatively simple and single blades, required as replacements, can be tested and adjusted against master blades without the necessity of testing a complete set.

Rotor thrust (lift), the power absorbed by the rotor, collective pitch (incidence angle of the blades), rotor revolutions per minute, blade pitching moment (rotor out-of-balance force) and tracking (blade position at tip-path-plain) are characteristics on which test results are recorded on control desks designed by Bristol Aircraft and collated by operators who work in the control room built into the base of the tower. The Crompton Parkinson 400-b.h.p. d.c. main motor and the blower motor starter are also in the tower base.

Varied Speed Requirements

The drive to the rotor is from the main motor via a gearbox and a vertical drive shaft with a standard rotor hub at its upper end. A mixed Ward Leonard and shunt control system is used to control the speed of the motor over a range 80-1,264 r.p.m. The Ward Leonard control is used for the low speed requirement—80 to 800 r.p.m.—because it is a convenient and economical way of obtaining slow speeds and a wide range of speeds, at constant torque. From 800 to 1,264 r.p.m. the full 400 b.h.p. of the motor is available.

The constant speed motor generator set, comprising an auto-synchronous motor and exciter and a generator and its exciter—all mounted on a common bedplate, runs at 1,000 r.p.m. The motor generator set and its control gear, which includes an Allen West circuit breaker and liquid starter and a d.c. contactor panel which is controlled from the tower, are housed in a substation on a site adjacent to the tower. The autosynchronous motor is supplied from 420 volt, three-phase, 50 c/s and is designed to operate at .95 leading power factor. To facilitate work when changing the rotor blades, a working platform which may be raised or lowered electrically, is powered from a point external to the tower. Safety devices are incorporated in the driving motor circuits to ensure that the rotor blades cannot be set in motion when work is in progress on the blades. In the main, it is blades for the Bristol Sycamore helicopter which are tested on the tower.

FESTINIOG LOCOMOTIVES

New Motive Power Depot

CARRIAGE stock now available on the Festiniog Railway is just adequate for normal occasions, but it might easily become a severe handicap should traffic demand an extra working or a special train. A rather similar position obtains with the motive power. The only engine in working order which is capable of handling four or more bogies up to Tan-y-Bwlch is the double Fairlie *Taliesin*. The 0-4-0 engine *Prince* which did such sterling work with two and three bogies on the short run to Minffordd is too small an engine to work the present timetable except as an emergency standby.

The petrol and diesel locomotives, although useful for all sorts of odd jobs, were never intended for passenger duties, although here again they may yet have to be used should anything happen to *Taliesin*. As for the Peckett 0-6-0 tank which was recently purchased from the Harrogate Gas railway, it is now evident that she cannot meet the operational requirements of the Festiniog in her present form. Her overall weight is too great on three axles, her cab requires considerable alteration, and it is doubtful if she has the steaming qualities to sustain a speed of 10-12 m.p.h. with a load on these heavy gradients. What is really needed is that the second Fairlie *Merddin Emrys* should be overhauled and returned to service without further delay. The cost might well exceed £2,000, but since it has to be done sometime, it is likely to prove cheaper to do it now than to endure expensive compromises.

Above Tan-y-Bwlch, at the entrance of the Garnedd Tunnel, the line has already been cleared, and the track appears to be in fairly sound condition. A certain amount of resleepering should suffice to make it serviceable. Because of the urgency attaching to this project, some of the other works in hand have been slowed down or temporarily suspended. One such is the scheme to convert the old paint shop in Boston Lodge Works into the future motive power depot. The roof has been made good, and the inspection pit is under construction. When completed the two-road building should provide a very snug stabling for about four locomotives; it is conveniently situated by the erecting shop where repair work is dealt with. The old engine shed is some way up the line, and at present engines are serviced in the works yard or the erecting shop. Work has also commenced on the clearance of the Glan-y-Mor yard to give access to the four-road carriage shed at the side of the works. It is an unfortunate fact, that it is here in Boston Lodge Works that the effects of long neglect are more than painfully obvious.

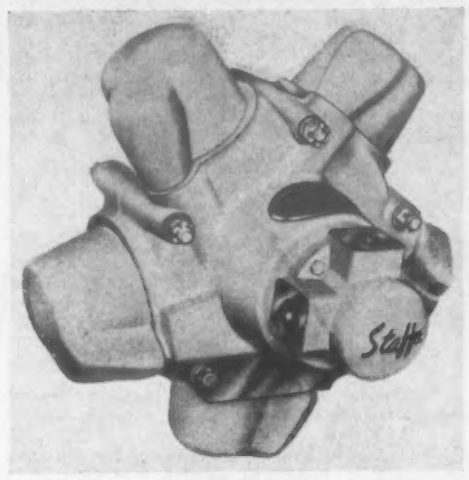
Peckett 0-6-0 saddletank built in 1944 and purchased by the Festiniog Railway from the 2-ft. gauge railway built by the Harrogate Gas Company to serve its works. It awaits modification

The work of rehabilitating the line and getting the rolling stock into serviceable condition has not left much time for large-scale renovations, although part of the problem is that volunteer labour is not particularly fond of building demolition and reconstruction. However, having regard to the enormous achievement of the past three years, we look forward with confidence to the time when Boston Lodge will be the historical showpiece of the line. A genuine early 19th-century railway workshops, its foundry darkly reminiscent of a medieval torture chamber, its massive walls and work benches lined with tools and implements that have been hallowed by the touch of master craftsmen—anonymous pioneers of the Machine Age will, we hope, be preserved here not as a museum exhibit but as a plant actively concerned with keeping Festiniog wheels turning.

HYDROSTATIC MOTOR

Low-Speed High-Torque Staffa Unit

FOR power transmission applications where a high torque at low speed, whether variable or constant, is required, such as in driving hoists, winches, conveyors and the like, Chamberlain Industries, Limited, has developed a new hydrostatic motor. The Staffa motor has five radial pistons of 4-in. bore and 3-in. stroke, with connecting rods having slipper-type bearings working against an eccentric on the shaft. A simple design employs a crankcase assembly split on the periphery and one-piece cylinders and heads which are clamped between the two halves of the crankcase. One side of the crankcase houses a crankshaft-driven pintle-type valve and each cylinder head embodies a combined inlet-exhaust port. The crankshaft and pintle valve run in tapered roller and needle roller bearings respectively.



The high torque Staffa hydrostatic transmission motor

The motor has been designed to work at a pressure of 1,500 p.s.i. and to run at a maximum speed of 50 r.p.m. When operated by a variable delivery pump, the motor can run from 0 to 50 r.p.m. in either direction and maintain a constant torque output. On test, the unit is reported to have run at 2,000 p.s.i. pressure and 100 r.p.m. with no marked falling off in efficiency.

An oil-water separator manufactured by Carruthers, Limited, Glasgow, has passed at the first attempt the M.T.C.A. test for compliance with the requirements of the Oil in Navigable Waters Act, which came into effect on July 1.

A new store and sales offices opened at 67-77 Holloway Head, Birmingham, 1: (telephone: Midland 6922) by British Insulated Callender's Cables, Limited, will enable the company to carry double the stocks of cable, cable accessories and jointing compounds, previously held locally in a number of temporary stores.

LOCOMOTIVE GEARBOXES

David Brown Units

A CONTRACT worth nearly £250,000 has been placed by North British Locomotive Co., Limited, Glasgow, with the General Gear Division, David Brown Industries, Limited, for axle-mounted gearboxes. This follows the placing of an order by British Railways for 52 1,000-1,100 h.p. main-line diesel-hydraulic locomotives to replace steam locomotives in the Western Region on passenger and freight services between Newton Abbot and Penzance and many of the through trains between Paddington and Bristol and the West of England.

One of 56 sets of David Brown axle-gearboxes for North British diesel-hydraulic locomotives for British Railways

The order calls for 56 sets of the David Brown gearboxes, each set comprising two primary and two secondary units. Each of the primary units has two-stage reduction, first through single helical gears and second through spiral bevel gearing, while the secondary units effect a single reduction through spiral bevels.

Production of the gearboxes at Park Works, Huddersfield, will be at the rate of three sets per month (that is, 12 units) to keep pace with the scheduled monthly delivery of three locomotives.

★

Forthcoming Events

July 26.—Light Railway Transport League. Paper by R. B. Parr, "The Wemyss Tramways." At Fred Tallant Hall, N.W.1. 3 p.m.
Norbury Transport and Model Railway Club. Tour of Millwall Extension Railway.

July 27.—Norbury Transport and Model Railway Club. Sheffield tram tour.
Southdown Enthusiasts' Club. Tour of Southdown routes in East Sussex.

August 9.—British Railways (Southern Region) Lecture and Debating Society. Visit to Liverpool Docks and Speke Airport.

August 17.—Omnibus Society (Midland and North Western). Visit to Potteries area independents.

August 24.—Omnibus Society (Northern). Visit to Northern General Transport Co., Limited. Meet Chester-le-Street Depot, Gateshead. 2.15 p.m.

September 1-7.—Society of British Aircraft Constructors. Flying display and exhibition. At Farnborough. (Public days September 5, 6 and 7.)

September 8-12.—Municipal Passenger Transport Association. Annual conference. At Blackpool.

September 13-14.—Railway and Canal Historical Society. Visit to remains of Somerset Coal Canal and railways, Dorset and Somerset Canal, broad gauge G.W.R. architecture and Kennet and Avon Canal features. Based on Bradford-on-Avon.

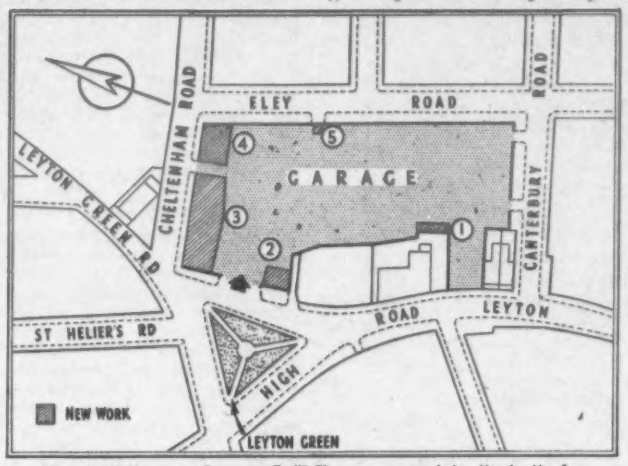
WORK AT LEYTON GARAGE

New Operating and Canteen Block

LAYOUT of the London Transport Central bus garage at Leyton is being improved by the building of a two-storey operating and canteen block and a new main entrance. A central boilerhouse is being provided which will do the work of the present three boilerhouses. When the work is completed the garage will have new elevations on to both Leyton Green and Cheltenham Road and rearrangement of the building will make parking space available, under cover, for extra buses.

The north-west corner of the site, at the junction of Leyton Green and Cheltenham Road, was made vacant as the result of war damage to property. This space is now being used as part of the site for the new block, which is to extend along the north side of the garage, parallel to Cheltenham Road. The block will be 130 ft. in length and have an average width of 44 ft. The ground floor of the block will accommodate a canteen and other staff facilities, and on the first floor will be the conductors' room, ticket office, offices for the district superintendent and the chief depot inspector. Existing traffic offices elsewhere in the garage will be used for other purposes.

Some old sub-standard offices and stores have been demolished to make room for the new block, and accommodation to take their place has been erected elsewhere in the garage. When the new block is finished the present temporary canteen in Cheltenham Road, beyond the end of the new building, will also be demolished. The roof of the existing shed is to be extended over the 52 ft. by 47 ft. space now occupied by the canteen, giving additional parking capacity. The new single large opening will replace the entrance and exit at Leyton Green and will be used for most of the day by buses both entering and leaving the garage. At the end of the day's run buses will enter here but will leave the following morning by the Canterbury Road exits.



New buildings at Leyton L.T.E. garage, originally built for the L.G.O.C. in 1912

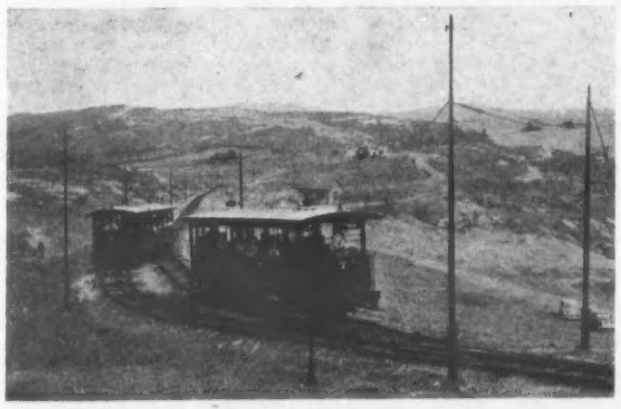
Key: 1—new site of three engineering shops moved to give space for the operating and canteen block; 2—new boiler house; 3—new operating and canteen block; 4—additional bus parking area made available by demolition of former canteen; and 5—new first-aid room.

The contractor for the preliminary work of demolition and for the erection of buildings to replace those demolished to make room for the new block was A. E. Symes, Limited, Stratford. This part of the work is now completed. The main contractor for the new block is Welwyn Builders, Limited, Welwyn Garden City, which has already started work. The cost of the work will approach £120,000. The architects for the new block are Messrs. Monro and Partners, in association with Mr. T. R. Bilbow, architect, London Transport.

Great Orme Railway

ELECTRIC WINDING GEAR

NEW winding gear has recently been installed for the cable-operated Great Orme Railway at Llandudno. Electrically driven and built by the English Electric Company, it has replaced the steam-engine drives which were originally installed when this 3 ft. 6 in. gauge tramway was opened. Operated today by Llandudno Corporation, it runs from Victoria Station to the summit of the Great Orme headland in two separate inclines.



Passing loop on upper section of Great Orme Railway with winding station in distance; the overhead wires are for telephone and bell signalling purposes

The lower incline, which is 800 yd. long with sharp curves, rises 400 ft. with a maximum gradient of 1 in 4.4. There is a halfway station where passengers change cars for the second incline, which is 827 yd. long, but rises only 150 ft. with a maximum gradient of 1 in 10.3. The upper half is a single track with a mid-point passing loop. The lower incline is similar but has part of its length laid with a common middle rail. Here the track is embedded in concrete flush with the road surface.

The halfway station houses the winding and control gear and originally contained the steam engine which the electric drive has replaced. The changeover was made during the winter when the railway is closed and the new equipment consists of an English Electric 125-h.p. 415-volt three-phase 50-cycle slipring induction motor which drives the cable drums for the lower haulage, and a similar 75-h.p. motor for the upper section. Both motors have speed control by rotor resistances operated by a drum controller. The original cable drums are now driven through new gear units to convert the motor speed of about 730 r.p.m. to the drum speed of 25 r.p.m. on the lower haulage and 35 r.p.m. on the upper haulage.

Winding-house equipment on Great Orme Railway with 125-h.p. drive for lower incline in foreground

On each incline two cars are connected by cables to their respective cable drums, so arranged that one car ascends whilst the other descends. The cars on the upper incline are also linked by a third cable passing round an idle pulley at the summit terminus. The trams weigh 6½ tons unloaded and seat 48 passengers. Those on the lower incline have screw-down hand brakes and governor-controlled skid brakes which bear on the concrete road surface if excessive speed is reached. The latter can also be hand operated. The upper-incline cars have screw-down brakes on the wheels and slipper brakes acting on the rails. The authorised speeds for these cars are 5 m.p.h. and 7 m.p.h. respectively.

The cables for the upper incline are ⅞ in. diameter steel and run on guide pulleys exposed between the rails, but on the lower section the cables, 1 1/16 in. in diameter, run in conduit down the centre of the track. Communication between the cars and the halfway station is by telephone and bell through an overhead wire to which the cars are connected by trolley poles. In the motor house at the halfway station the two drives are controlled from a common driving platform, each with its drum controller, tachometer, ammeter, telephone bell communication and emergency stop switch. In addition, a hand wheel operating a screw-down brake on the coupled winding drums is arranged on each platform.

The safety measures associated with each drive are threefold. A weight-operated brake is held off by an electro-hydraulic thrustor when the power circuit is made. By pushing the emergency stop button the power circuit is broken, applying the thrustor brake; there is a centrifugal trip on the motor which breaks the power circuit at 15 per cent overspeed, again bringing in the thrustor; and the screw-down handbrake on the driving platform has full electrical interlocking with the "power-on" button on the control panel and the control handle. Before power can be obtained this brake must be full on with the control handle at "neutral."

On the lower-incline cars the skid brakes operated automatically at 6½ m.p.h. under test. Teeth on the undersides of the skids grip the concrete and bring the car fairly smoothly to a stop in eight yards at the steepest section of 1 in 4.4. Before the conversion to electric drive a fully loaded car on the lower incline could not cause overspeeding, due to friction on the cable. The Ministry of Transport requires that overspeed tests should be made annually, and therefore some method of speeding up the drive from the induction motor had to be provided. This is done by means of vee-belts driving via a layshaft on to the other end of the first motion shaft of the gear unit. Bolts which

(*Continued on page 17*)

NEWS FROM ALL QUARTERS

Epping-Ongar Service

One of the two-car shuttle trains running on the six-mile Epping—Ongar section of the L.T.E. Central Line was lengthened to three cars on July 7. The second shuttle train will be similarly lengthened in the near future.

Retirement Pensions Quarterly

From early next year retirement pensioners who so wish will be able to have their pensions paid quarterly in arrears by crossed postal drafts which they can pay into a banking account instead of by the present method of weekly orders cashed at the Post Office. This is announced by the Minister of Pensions and National Insurance.

L.M.R. Stations Closing

The London Midland Region announces that Wavertree Station, between Garston and Edge Hill, Liverpool, is to be closed to passengers on and from August 5. Barton and Walton Station, between Tamworth and Burton-on-Trent, and Spring Vale, between Bolton and Blackburn, close on the same date.

Tynemouth Oil Terminal

A £2 million marine terminal for the storage and distribution of petroleum products has been started at Tynemouth. The Esso Petroleum Co., Limited, announces that work has already begun on the project, following the purchase of 60 acres of land from Tynemouth Corporation. Preparations include Northumberland Dock wall being moved back 70 ft.

Manx Electric Railway Subsidy

The Manx Electric Railway has been reprieved. By a large majority Tynwald (the Isle of Man Parliament) has granted £25,000 to enable it to continue operating this season. But the grant was conditional on the new Board re-examining the present summer timetable, which had been the cause of considerable dissatisfaction. A new Board has now been elected without opposition.

Severn Bridge Starting Date

The Minister of Transport announces that in the interests of economy and efficiency, the construction of the Severn Bridge should be properly phased with that of the Forth Bridge. In effect this means that, if everything goes according to plan, it is hoped to start constructional work on the Severn Bridge (which will be a toll bridge) some two years after work on the Forth Bridge is reasonably well advanced. (Work on the Forth Bridge is to commence in the autumn.)

Norfolk and Western to be All-Diesel

The Norfolk and Western Railway has announced that it is to purchase 268 diesel locomotive units at an estimated cost of about $50 million. Delivery will begin in October and continue at the rate of 12 to 15 a month. The purchase will be financed with equipment trust certificates or some similar type of borrowing; the new diesels will enable the railway to dieselise completely its operations at present traffic levels. Its current fleet includes 400 steam locomotives.

Marchwood By-Pass

A grant of £185,000 has been made by the Minister of Transport towards the cost of the proposed Marchwood by-pass in Hampshire. Estimated to cost £300,000, it will start on A35 near Totton, run south-west of Marchwood and join the Totton—Fawley Road (B3053) south-east of Marchwood. Industrial development in and near Fawley has greatly increased traffic.

Bukonte—Jinja Cut-Off

One of the railway projects recently approved in principle by the Transport Advisory Council in East Africa is the construction of a railway line from Bukonte, near Nsinze in eastern Uganda, to Jinja, a distance of some 53 miles. This link, surveyed in 1926, which will reduce the length of the through railway route to Kampala by just over 40 miles, will become part of the main Uganda line, replacing the Nsinze—Mbulamuti—Jinja section which will then serve as a branch line.

Roomettes on E.A.R. Trains

A roomette type of first-class coach is being considered for adoption on certain sections of the East African Railways. It provides individual single compartments and therefore is particularly convenient for travellers, such as business men, travelling alone. Passengers using such facilities would have to pay a supplementary fare. Two designs of air-conditioned roomette coaches have been drawn up; both have a central corridor and provide, in one vehicle, single-berth accommodation for 14, all sleeping at lower bunk level.

Railway Workshops Wage Settlement

An offer of a 3 per cent pay increase for 115,500 workers in British Railways workshops has been accepted by representatives of the National Union of Railwaymen and the Confederation of Shipbuilding and Engineering Unions. It is back-dated to June 30, and is subject to a later review in the light of further developments, including the coming review of wages in the railway industry. The agreement will mean increases in wages of 4s. 6d. for labourers and 5s. 6d. for skilled men, and is estimated to cost more than £1,500,000 a year.

A Hopeful Formula for Travel

A Reform Club pundit disclosed in a letter in *The Times* last week that he had evolved a remarkably simple formula for the benefit of visitors to the Metropolis, enabling them to estimate the journey time between "any two stations on the London Underground." This is it: $S+S/2+4=TJ$, where S is the inclusive number of stations and TJ the journey time. Use of this formula for journeys between, for example, Pinner and Watford, or even High Street, Kensington, and Earls Court in the late evening has, it is believed, already resulted in several delayed arrivals due to failure to take into account service headways. With this and other factors in mind, a subsequent correspondent substituted a rather more complex equation, $2(S-1)+8+5X=TJ$, where S is the number of stations inclusive and X the number of changes necessitated. There remain the unknown quantities such as wrongly described trains and, of course, door failures.

COMMERCIAL AVIATION

Aquila Service to Cease

ROLLS-ROYCE IN BRAZIL

AFTER publication of various rumours it was announced last week that Aquila Airways is to cease flying-boat operations on October 1. In a statement, the airline said that its 10 years of operations had been brought to a halt for reasons of economy following a succession of seasons during which abnormal swell conditions were experienced in Madeira, making services not only uneconomic, but unsatisfactory from all points of view. The three Solent flying-boats are to be offered for sale.

Traffic at Dublin Airport

In the quarter ended June 30 there were 7,170 aircraft movements at Dublin Airport, of which 5,588 were concerned with air transport. Passengers handled totalled 132,454, of which 710 were in transit, while freight amounted to 1,884 tons with 1,878 tons of it in the terminal category.

T.C.A. DC8 Seating

The Rolls-Royce Conway-powered Douglas DC8s which Trans-Canada Air Lines will put into service on the North Atlantic to Britain in mid-1960 will carry 127 passengers—28 first class and 99 economy. The DC8 will be operated by T.C.A. on trans-Continental and transatlantic routes and six Jetliners will go into service in 1960.

Anglo-Ethiopian Agreement

An air services agreement between the United Kingdom and Ethiopia was signed recently in London after negotiations lasting a fortnight. Although air services between Ethiopia and adjoining British territories have been in operation for some years, there has not previously been a permanent agreement between the two countries to govern the extent of these services and the conditions under which they operate. The agreement, which is provisional until ratified, comes into force at once.

Another I.A.T.A. Member

Indian Airlines Corporation has been admitted to active membership of the International Air Transport Association, Sir William Hildred, director-general of I.A.T.A., announced recently. The corporation operates an extensive network of domestic services in India and provides international connections to Afghanistan, Burma, Ceylon, Nepal and East and West Pakistan. Its admission brings to 85 the number of airlines in the world airlines organisation, of which 77 are active and eight are associate members. I.A.C. will be associated with Air-India International as hosts to the 14th annual general meeting of I.A.T.A. which is to be held in New Delhi from October 27 to 31.

British Airports in April

Air transport movements at United Kingdom aerodromes in April, 1958, numbered 25,099, an increase of 6 per cent when compared with April last year. The number of passengers handled in the same period, however, decreased by 2 per cent to 493,568. Freight traffic amounted to 12,385 short tons, an increase of 20 per cent over April, 1957, and Post Office mail set down and picked up amounted to 1,442 short tons. At London Airport there were 9,781 air transport movements, an increase of 10 per cent, and 274,512 passengers were handled, an increase of 2 per cent. Airports at which passenger traffic increased notably over April, 1957, were Ferryfield, by 28 per cent to 11,169, Newcastle (Woolsington) by 85 per cent to 1,163, Tiree by 25 per cent to 373, Croydon by 19 per cent to 3,911, Bristol (Lulsgate Bottom) by 15 per cent over Bristol (Whitchurch) to 4,026 and Cardiff (Rhoose) by 12 per cent to 3,321.

Rolls-Royce Brazilian Subsidiary

Rolls-Royce, Limited, has taken orders worth £7,500,000 from seven South American airlines since 1954 for turboprop and turbojet engines and expects further business as other South American airlines re-equip with turbine-powered transports. By 1960, there will be nearly 150 Rolls-Royce aero engines of these types in airline service in South America arising from present firm orders. To meet this growing volume of business, Rolls-Royce is investigating sites for the establishment of an overhaul and spares base on the spot and have set up a new subsidiary company in Brazil to manage the depot. The base, which will probably be in the São Paulo area, will contain complete overhaul and spares facilities for the whole range of Rolls-Royce engines going into service in South America, including modern test beds for running these engines. Similar establishments in Canada and Australia, managed by Rolls-Royce subsidiary companies, have been serving the North American and Pacific area customers of Rolls-Royce for some years. The Brazilian base will initially provide overhaul and spares service for the Darts in the Vickers Viscounts ordered by V.A.S.P., of Brazil, and for the Avon and Conway jets ordered by VARIG for its Sud Aviation Caravelles and Boeing 707-420s. It will also be available for the other customers of Rolls-Royce in South America, including operators of the company's range of diesel engines.

DC8 Range Extended

An extended range intercontinental model of the DC8 jet air liner, capable of nonstop flights up to 6,800 miles, has been announced by the Douglas Aircraft Company. Mr. Nat Paschall, vice-president sales, said that several purchasers of intercontinental DC8s had changed their orders to include the new model. The latest version will be able to transport a 26,500-lb. payload 5,600 miles, with normal fuel reserves. Standard intercontinental DC8s, with a maximum fuel capacity of 21,615 gallons and a take-off gross weight of 287,500 lb., will carry the same payload 5,000 miles under the same conditions. Carrying 1,692 more gallons of fuel, the extended range DC8 will have a take-off gross weight of 310,000 lb. Maximum landing weight will be 199,500 lb., 5,500 more than standard models. The aircraft can be powered either by Pratt and Whitney J75 or Rolls-Royce Conway turbojet engines. A plan to increase utilisation of the DC8 by maintaining stocks of spare parts in New York and Europe has also been announced. By stocking a broad range of spares at Idlewild International Airport, the company will be able to provide emergency replacements to airlines operating on the eastern seaboard and in Europe faster than from California. Some major assemblies, too large for easy shipment from New York in passenger aircraft, will also be maintained at a central point in Europe. Mr. W. S. Fryer, director of parts sales, has explained that the spares would be Douglas proprietary items only and would not include components of other manufacturers.

MALAYAN RAILWAY MANAGEMENT

D. Dyer Bartlett

Mr. D. DYER BARTLETT, F.C.C.S., M.Inst.T.

• • • • • •

As already recorded in MODERN TRANSPORT, Mr. Dudley Dyer Bartlett, deputy general manager, Malayan Railway Administration, has been appointed general manager and chairman of the Railway Board, consequent upon the retirement of Mr. C. G. Harrison. Mr. Bartlett obtained station and headquarters office experience with the Great Western Railway, which he joined in 1931. He was later appointed a special trainee and undertook a four years' course of training which terminated just before the outbreak of war in 1939. He joined the military section of the superintendent of the line's office in September of that year and in 1940 was seconded to the operating control section of the Railway Executive Committee. In June, 1941, Mr. Bartlett was appointed junior assistant to the district traffic superintendent, Plymouth, and later as chief clerk in the Gloucester and Bristol divisions. In 1943 he became assistant divisional superintendent, Gloucester, and was transferred to Bristol in a similar position in 1945, becoming senior assistant a year later; during this period he served as a member of the headquarters rules and regulations committee and in December, 1948, Mr. Bartlett resigned his appointment with British Railways on accepting the position of assistant superintendent, East African Railways and Harbours. On his arrival he was stationed at Dar-es-Salaam and in the following year was appointed as regional officer for Tanganyika at a time when the groundnut scheme was in full swing. In 1951 he was transferred to Nairobi and acted as superintendent of the line after Sir Arthur Kirby's appointment as assistant commissioner of transport and in the following year he was appointed chief operating superintendent. He left East Africa in December, 1954, to take up the appointment of deputy general manager, Malayan Railway, the post he has now vacated. During the past three years he has been a member of the Penang Port Commission, the Employees Provident Fund Board, and the National Joint Labour Advisory Board of the Federation of Malaya. Mr. Bartlett who is a Brunel Transport Medallist of the London School of Economics, is chairman of the Selangor branch of the Institute of Transport and the honorary corresponding member for the Federation of Malaya.

IN PARLIAMENT

Rail Traffic Shrinking

DOOR-TO-DOOR SERVICE HOPES

OPENING a debate on Thursday last week on a Government motion noting the 1957 report and accounts of the British Transport Commission, MR. H. WATKINSON, the Minister of Transport, indulged in a sly dig at those who want more, not fewer, debates on transport. It was, he suggested, a bad thing, in business as well as in life, to be always taking one's pulse. "I do not know whether I shall carry the House with me, in present circumstances of Select Committee and questions of privilege, but we are in danger of making hypochondriacs out of the nationalised industries. We are always invigilating them and talking about them in Parliament and, as a result, they are always getting knocked about in public." Reviewing the results of the year's operations, Mr. Watkinson said it was no use baulking the fact that traffic was down, but not everywhere—British Road Services was running at last year's level. Wherever one examined the progress of railway modernisation it was paying off better than anyone ever thought. Transport statistics were a barometer of industrial activity and to look for the reason for the traffic decline one could, for example, look at the home consumption of coal. It fell by five million tons in 1957 and was already one million tons down in the first half of the year compared with the first half of last year.

The Government had decided that it was not going to increase the size of advances to the Commission which has been and were being given under the Transport (Railway Finances) Act. Some people disliked the whole principle of this. He believed that he spoke for the Commission in saying that it did not wish to be relieved of the necessary financial disciplines under which any great business must work, particularly a great business in debt to its bankers—in this case, her Majesty's Government—to the tune of many millions of pounds. Any business in that situation would be under severe discipline from its bank.

London Fares

The Minister said he wanted to make quite clear the position on the subject of fares and charges. The chairman of the Commission told him on May 2 that, in his view and that of his colleagues, there was not at present scope for obtaining a large increase in receipts by raising fares. That was why the bulk of the current wage increases in London and on London Transport would have to be met from economies. The Commission did not propose to make any fare increases in the near future, except to clear away the last of the sub-standard fare anomalies, which was absolutely right.

It had exhausted its present charging powers and would therefore be making an application to the Transport Tribunal for the necessary authority, probably early in September. If it obtained that authority, what use it made of it was another matter. In any case any alterations which were agreed probably could not come into effect until next year, because a date next year was, he thought, the earliest that the Transport Tribunal would fix. The issue was therefore not a very real one until at least next year. That was why economies were so important now.

Still An Adequate Service

There were those who said that London traffic would move more easily if there were fewer buses. "I do not necessarily hold that view, but whether we do or not, there will have to be cuts, and I think that, on the whole, they are not cuts which will result in the breaching of the general position which London Transport has to face, and that is providing adequate services," said Mr. Watkinson.

On the freight side the Commission was aiming at a quite new type of service for freight. This would be a road-rail service in some cases. In others it would be a door-to-door through service of pallets, containers and the demountable body which, he thought, was showing possibilities of great development. What the Commission wanted was "freight liners" on the railways which would be made up of fast, fully braked flat or well wagons carrying demountable bodies and running to timetable service at very high speeds.

Drift Towards Subsidy

For the Opposition, MR. ERNEST DAVIES said it was terrible to contemplate the total accumulated liabilities and indebtedness which would accrue to the Commission by 1962. The Government had not declared what it intended to do about it, nor, apparently, was it doing anything about it. A series of contradictory decisions and confusing interference in the Commission's affairs was not a transport policy. It could not lead to solvency but only to bankruptcy, and that meant, ultimately, subsidisation of the transport industry. There was only one way to avoid that and to get the Commission out of this distressing situation. That was to return to the plan of a publicly-owned transport system which remained Labour's policy.

B.T.C. Break-Even Date Stays

No revision of the estimated break-even date, 1961-62, for the British Transport Commission had been made following publication of its report and accounts for 1957. The Minister of Transport told MR. ERNEST DAVIES this in response to his inquiry on the subject. MR. WATKINSON recalled that the B.T.C. chairman had said that the Commission did not seek to be relieved of the commitment in this respect accepted in the 1956 White Paper. Mr. Davies said he hoped that this optimistic prediction would be fulfilled. Mr. Watkinson also told Mr. Davies that he did not think that the forthcoming cuts in London Transport bus services would impair the efficiency of L.T.E.

Mud Spray from Road Wheels

MR. S. HASTINGS interrogated the Minister of Transport about the finely divided mud spray thrown into the atmosphere by heavy motor vehicles in wet weather; and asked for new regulations to deal with this nuisance. MR. H. WATKINSON said that the provision of wings or other similar fittings to catch the mud and water thrown up by vehicle wheels was a statutory requirement. He could not see that further regulations would materially improve the situation.

Bristol Factory Taken Off M.o.S. Work

MR. W. J. TAYLOR, Parliamentary Secretary, Ministry of Supply, told a questioner that the much reduced volume of vehicle repair work now carried out by Bristol Commercial Vehicles, Limited, at Kingswood would be progressively transferred in the course of the next six months to M.o.S. central motor transport repair depots at Weston-super-Mare and Blackpool. The necessary plant and equipment would be similarly transferred. Recently this work had given employment to 400 men.

Planning of Road Deliveries

(*Continued from page 3*)

distance journey is initiated in this section of the office without the prospect of a return load. Surplus traffic to similar destinations, or traffic for other reasons not suitable for the C-vehicles, comes the way of the A-licence operator. It is destined principally for Manchester, Birmingham, Derby, Nottingham and Leicester, occasionally goes to the North East, the West Country and East Anglia also. Most of the return loads for A-vehicles consist of commercial traffic; outward loads are found solely from group traffic and charges are the same for both A- and C-vehicles.

Manchester Office

Opening a Manchester sales and transport office on March 31 this year signalised, for the transport company, a stepping-up in the efficiency of its operations; a night trunk service is being introduced in lieu of daytime running.

When both the above sections have absorbed their quota from what is available, remaining traffic is handed to regular sub-contractors and other hauliers. In fact 30-40 per cent of outward traffic is handled in this fashion, nearly all to provincial destinations and mostly in part loads or loads with more than one delivery. This is because the A- and C-sections, with their advance planning, rightly place greatest value on known schedules and prefer to "sell" the multiple delivery jobs.

A teleprinter connection to the London office in Great Suffolk Street, Southwark, informs it daily of the work arranged for its vehicles on the following day as soon as programming is completed. The teleprinter will be increasingly used when a Manchester link is put in. The primary function of Great Suffolk Street depot is to break down full loads of newsprint reels so that the vehicles can pass the restricted clearances at some printing houses. The buffer of reels thus created is used to fulfil deliveries at weekends, and journeys up from Kent are therefore reduced or eliminated on Saturday and Sunday. Another London depot maintains supplies of kraft for users of small quantities.

Radio-Equipped Works Transport

A Pye 15-watt transmitter-receiver (model PTC703X) forms the basis of a two-way vehicle radio installation at Aylesford, principally for the effective control of works transport (including a plant service vehicle and ambulances). The traffic department has a PTC411 remote-control unit in the office which covers the movements of two tractor units under its control for the shunting of the pool of 16 semi-trailers allocated to journey work. Other tractors, including eight special Douglas Tugmaster models, are employed in conjunction with a fleet of semi-trailers on site services. The two tractors mentioned are detailed to supplying the loading bays with transport in the form of trailers as they require it, thereby evening out the loading rate in many cases. This aspect of articulation is one which makes it especially attractive on a site as extensive and with the output of Aylesford.

Pinpointing Down Time

By means of Movigraph wall charts (brought up to date daily at 9 a.m.) the traffic department has a complete and up-to-date picture of fleet non-availability, down time being shown under any one of five heads: maintenance, accident repairs, normal repairs, repainting, idle time. The record is maintained day by day, summarised at the end of each month and cumulatively throughout the year. There are four charts of the pegboard type for the A, C (Aylesford), C (London) and C (local Aylesford) fleets.

Across the top of each section is a daily scale covering two months, down the left small panels, one for each vehicle. The five sources of non-availability are each given a colour code and signals in the form of pegs (square for a 12-hour period, round for a six-hour period) are inserted against the appropriate vehicle and date. The monthly record for each vehicle is summarised in vertical columns on the right of the chart. It therefore throws up immediately individual vehicles (and drivers) or classes of vehicle prone to trouble, enables the traffic people to see at a glance the time taken to complete particular maintenance or repair jobs and is used to prepare a summarised accident record for inclusion in a monthly drivers' newsletter.

WEEKLY TRAFFIC SHEET

FLEET	DRIVER & TIME	CODE	MONDAY	DRIVER & TIME	CODE	TUESDAY	DRIVER & TIME	CODE	WEDNESDAY	
10	BLOGGS 6 A.M.	A R.L	16 T. RED LION WHARF W/L 10T. WASTE BATTERSEA (TOVIL)	BLOGGS 6 A.M.	A R.L	16 T. ODHAMS (WATFORD)	BLOGGS 7 A.M.	A +	12 X 64" D. NEWS 9-30 A.M. C.W. 9 X 50¢" D. MIRROR TO LONDON DEPOT	O
15	HANSON 7 A.M.	BI L.P.M.	15T. ODHAMS PRESS 15T. BROOKGATE IND.	HANSON 6 A.M.	A EX R.L	21 X 50¢" D. MIRROR RB LONDON DEPOT 21X50¢D. MIRROR RB 9T. WASTE LEWISHAM (TOVIL)	HANSON 7 A.M.	M.P.S.	15 T. SOUTHALL	
16	BROWN 6 A.M.	A	15 T. BRISTOL	/		— JOURNEY 2 —	BROWN /	R L A	15 T. EX. AVONMOUTH (A) 16 T. NORTHFLEET	
17	GOWER 7-30 A.M.	A R L	21X64" GE NEWS OF THE WORLD 9-30 A.M. 16 T. CASEIN SOUTHWARK (A)	GOWER 6 A.M.	A R L	16 T. PURFLEET W/L 16 T. 'PULP' PURFLEET (A)	GOWER			X

KEY

O	INDICATES VEHICLE AVAILABLE FOR RETURN LOAD.
X	INDICATES VEHICLE AVAILABLE FOR OUTGOING LOAD.
/	INDICATES VEHICLE EMPTY AND AVAILABLE FOR NIGHT LOADING.
X	INDICATES VEHICLE LOADED OVERNIGHT.

This is part of a seven-day traffic sheet (entries on the original are made in pencil): standard abbreviations, for example "A" for Aylesford Paper Mills, "BI" for Brookgate Industries (a Reed Paper Group company) and "RL" for return load save space. Key feature is the use of symbols to denote forward position of each vehicle

COURTAULDS' FILM

Getting Down to Casings

NOT unnaturally, as the major supplier of high-tenacity rayon yarns, which since the war have rapidly and almost completely replaced cotton as the material for tyre casings, Courtaulds, Limited, and its associates in the United States and Canada, have been concerned with the growing challenge of nylon as a tyre-cord material. Much has been written on the virtues of nylon in tyres, particularly in America, with little factual corroboration to support many of the claims made. Determined to rid the budding controversy of the fog of theorising, generalisations and quotation of figures out of context that an over-concentration on individual basic features of rayon and nylon was developing about it, the American Rayon Institute, with Courtaulds playing a leading part through its Canadian company, sponsored an intensive series of comparative tests, many of them by independent authorities, on tyres that were alike in all respects other than their fibre content.

The nature of the tests involved and summaries of the results achieved in the tests have been recorded in a 15-min. colour film produced for the Rayon Institute for the widest possible showing to American audiences. Entitled *Getting Down to Casings*, the film indicates that the tests, carried out under widely varying conditions, both in the laboratory and on road and track, dispose completely of the claims for the superiority of nylon and show conclusively that rayon is in fact superior wherever there is a difference in performance of the two cord materials. Due to its better resistance to tyre growth, for example, the tread life of the rayon-cord tyres was 26 per cent better than nylon and noise-level tests showed that rayon gave a quieter ride. With equal carcass strengths, rayon and nylon behaved similarly under severe impact testing. Copies of the film can be borrowed from Courtaulds, Limited, Coventry.

New Rayon Yarns

At a preview of *Getting Down to Casings*, shown in London this week, a Courtaulds representative gave some comparative costs of rayon and nylon tyre cords. The cost per unit strength of Tenasco Super 105 1,650-denier yarn was quoted as 82 per cent and 1,100 denier as 79 per cent of that of nylon. Processed into tyre plies, the unit cost of these two rayon materials was 92 and 86 per cent respectively of that of nylon. This shows a saving in the cost of yarn of 18-21 per cent, but it was pointed out that the actual saving was in fact between 20 and 25 per cent due to the fact that current practice was to use more nylon in tyre cords to offset some of its basic defects. The figures were produced for commonly used tyre fabrics of 690 lb. per inch strength.

These tests were carried out with the best rayon yarns available a year ago, but further tests are proceeding with improved yarns which show a 50 per cent improvement over those available five years ago. Still further improved versions of Tenasco have been developed to the pilot-scale production stage and three versions of these improved yarns will be available commercially shortly. A Courtaulds publication, *Why Are Tyres Tougher?*, dealing with the comparative costs of the latest rayon yarns and nylon is available on request from the company's offices in Coventry or 22 Hanover Square, London, W.1.

A new company named Pneumatic Scale (England), Limited, has been formed by Pneumatic Scale Corporation, Limited, of Quincy, Mass., U.S.A., Vickers-Armstrongs (Engineers), Limited, and Rockwell Machine Tool Co., Limited, to manufacture in the United Kingdom and market throughout the world the complete range of Pneumatic Scale equipment. The registered office of the company will be at Vickers House, Broadway, Westminster, London, S.W.1. The manufacture of the machines will be carried out at the works of Vickers-Armstrongs (Engineers), Limited. Sales will be carried out by Rockwell Pneumatic Scale, Limited, Welsh Harp, Edgware Road, London, N.W.2, to which all inquiries should be addressed.

As already announced in "Modern Transport," during their recent tour of Scotland, H.M. the Queen and H.R.H. the Duke of Edinburgh visited the India Tyre factory where Her Majesty is shown in happy mood just after Mr. L. J. W. Bailey, general manager, introduced an operative

TWIN-STEER MERCEDES-BENZ

For 16 Tons Gross Weight Solo

THE first of its type to appear in Germany, a twin-steering three-axled commercial vehicle has been introduced by Daimler-Benz A.G. As acknowledged in the manufacturer's introductory remarks, this type of chassis layout has been established for many years in this country and in some of our export markets, where it has been found to have advantages for certain types of operation. The new German example is designated Mercedes-Benz LP333 and the maker claims that it offers a new technical approach, providing excellent stability and driving behaviour even on slippery roads as well as increased safety in the event of tyre trouble.

The suspension and steering arrangements appear conventional for a forward-control twin-steering chassis, giving correct rolling of all four front wheels at all lock angles. The overall design has been dictated by current West German regulations that require a one-to-one proportion between a towing vehicle and trailer and a minimum engine output of 6 h.p. per ton gross combined weight. The vehicle is intended mainly for trunk haulage at a gross weight of 15¾ tons solo or 31½ tons with four-wheeled trailer. With a running tare complete with cab and platform body of about 6¾ tons, this permits a solo payload of 9 tons.

Mercedes-Benz LP333 twin-steer 9-tonner with sleeping-berth cab and, right, close-up of the steering linkage

Established Components

The LP333 is now in production at the company's Gaggenau works and almost all the principal components are those already used in established commercial vehicles. The chassis is available with one wheelbase length of 4 ft. 5¾ in. plus 12 ft. 7 in. and with three different types of works-built full-forward-control cab. A conventional two-seat cab permits a body length of 20 ft. 4 in., while the so-called "bird's nest" cab with a single sleeping bunk arranged over the two seats allows a similar body length. The third arrangement, primarily for long-distance transport, has a longer cab with three seats and two sleeping berths and permits a body length of 18 ft. Because of the one-to-one vehicle-trailer ratio, standard axle capacities are 4 tons on each front and 8 tons on the rear, but for export a 10-ton capacity rear axle can be fitted, this permitting a gross solo weight of 18 tons.

The vehicle is powered by the OM326 six-cylinder diesel engine of 659½ cu. in. displacement set to produce a gross b.h.p. (S.A.E. rating) of 220 at 2,200 r.p.m. and 535 lb./ft. torque at 1,300 r.p.m. Drive is through a single dryplate clutch and ZF S6 70 overdrive-top six-speed all-synchromesh gearbox with compressed-air-assisted gearchange. The gearbox provides ratios of 7.35, 4.3, 2.69, 1.65, 1 and 0.678 to 1 forward and 6.7 to 1 reverse. The standard axle ratio is 6.5 to 1 with an alternative of 8.35 to 1. With the standard axle ratio and 9.00-20 tyres, road speeds at governed engine speed are 23½ m.p.h. in fourth, 39 m.p.h. in direct drive and 57½ m.p.h. in overdrive gears. Laden, the vehicle is said to have a climbing ability in first gear of 1 in 2.2 solo and 1 in 5.4 with loaded trailer.

The standard specification of the LP333 includes compressed-air braking, an air-operated exhaust brake and ZF-Hydro-Gemmer power-assisted steering. A 31-gal. (Imp.) fuel tank is fitted and a two-battery 12-volt electrical system is arranged to provide 24 volts for engine cranking.

Stockport Then and Now

NEW BUSES : A TRANSPORT FLASHBACK

FOUR Leyland Tiger Cubs with Crossley bodies were recently added to the fleet of Stockport Corporation Transport Department. They are the first 30-ft. long and the first 8-ft. wide buses in the Corporation fleet and seat 44 passengers. They are operating on the half-hourly route 75 between Offerton and Green End; hitherto this service has been worked by 1934 Leyland single-deckers. The Corporation has also taken delivery of the first two of 10 new Leyland double-deckers with 61-seat new-look Crossley bodies. Both deliveries incorporate features new to the Stockport fleet. These include plastics strip bell pushes, heaters, demisters, automatic lubrication, and in the cabs of the double-deckers periscopes, enabling destination indicators to be wound from the driver's seat. The bodies are likely to be among the last to come from the works of Crossley Motors, Limited, at Errwood Park, Stockport.

A new Leyland Tiger Cub of Stockport Corporation at Green End on the route to Offerton

Stockport Civic Week

One of the attractions of Stockport Civic Week from July 6-12 was an exhibition in the Town Hall. On the transport department stand, which was visited by 12,500 people, were displayed 86 photographs illustrating the growth of the undertaking, a Williamson punch and ticket rack (containing last-tram tickets), a dismantled ticket-issuing machine, a catalogue of sale of the Stockport and Hazel Grove horse tramway, a book of cuttings, maps of the tram, trolleybus and bus routes, a copy of the tramway bylaws and regulations, and bus safety posters.

Photographs revived memories of the horse buses, which were on the roads as early as 1847, and the horse trams, which were operated by the Stockport and Hazel Grove Carriage and Tramway Co., Limited, and the Manchester Carriage and Tramway Company. Stockport Corporation introduced electric trams on August 26, 1901, the first routes being from Mersey Square to Woodley Station, Cheadle Heath and Sandy Lane—a total mileage of 5.10. The rolling stock at that time consisted of 10 Dick Kerr single-truck open-top cars. From this small beginning the system expanded, and by 1924 Stockport trams were running to Hazel Grove (electrification of the horse tramway having taken place in 1905 following acquisition of the company), Manchester, Hyde, Reddish, Gatley and Edgeley.

Trolleybuses were introduced in 1912, between Stockport and Offerton, but were abandoned in 1919 in favour of motor buses. Electric trams served the town for exactly 50 years, the last one running on August 25, 1951. Today there are 170 buses operating over 170.34 miles of route and carrying approximately 50 million passengers each year.

Among the latest products introduced by the metal finishing division of the Pyrene Co., Limited, are the Parker F process, developed for dealing with small amounts of surface rust and producing an iron phosphate coating conforming to the Defence Specification DEF29 Class I; Pyroclean No. 9, a heavy-duty material for immersion cleaning which can also be applied by spray; and Preperite No. 3, for removing rust from ferrous materials and corrosion products from non-ferrous metals.

CLASSIFIED ADVERTISEMENTS

RATES.—The minimum charge for classified advertisements is 7s. for 14 words or less, and 6d. for each additional word. The name and address of the advertiser is charged at the same rate. If a box number is used 2s. extra is charged to cover our name and address and postage. If set in paragraph form each paragraph is estimated separately. Official Notices and semi-display in the classified columns are charged at the rate of 45s. per single column inch.

CLASSIFIED ADVERTISEMENTS should be addressed to THE MANAGER, Classified Advertisements, MODERN TRANSPORT, Russell Court, 3-16 Woburn Place, London, W.C.1.

SITUATIONS VACANT

TRANSPORT. Man, 20/21, required by large industrial concern in North Wembley area to keep vehicle maintenance records for fleet of 250 vehicles and generally to assist on repair side. Preferably some knowledge and interest in vehicle maintenance. Salary £8 per week. Pension scheme and canteen. Write Box No. 3792, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1.

SKILLED or semi-skilled Motor Mechanic required for large engineering firm near Wembley. Pension fund, sports club, canteen, etc. Apply with full details of experience to Box No. 3793, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1.

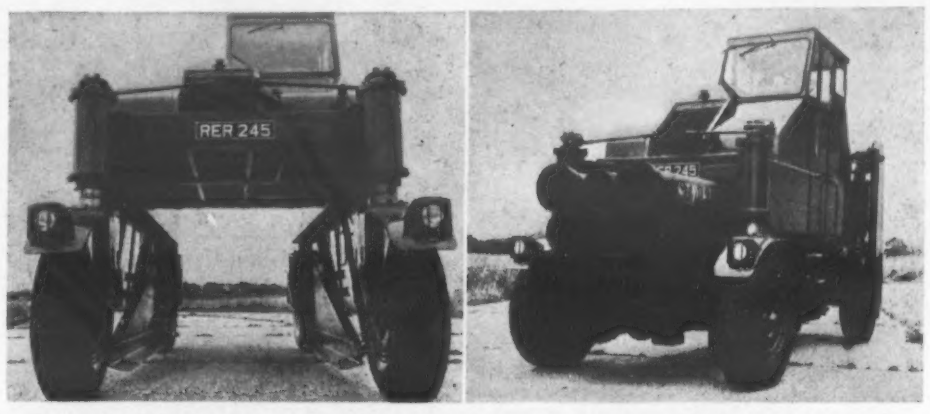
PUBLICATION

NINETEENTH CENTURY RAILWAY CARRIAGES. By C. Hamilton Ellis. Profusely illustrated. Order your copy through the publishers, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1. Price 22s. post free.

IMPROVED STRADDLE CARRIER

Four-Wheel Steering : Swinging Hooks

FOR mechanical handling operations which involve the lifting and carrying over considerable distances—and over hard or rough surfaces—of long and heavy loads or bulky cubed unit loads on pallets, the Mark 2 British Straddle Carrier was claimed, at a demonstration last week, to be the fastest and cheapest equipment available. This carrier is the first of its type designed to comply with the M.o.T. Construction and Use Regulations which permit its use on public roads. It is the only straddle carrier produced in Britain and is built by the British Straddle Carrier Co., Limited, which, as recently announced, is now a subsidiary of Short Brothers and Harland, Limited.



British Straddle Carrier Mark 2 with swinging load hooks in the free position; right, a load of steel pipes securely held ready for travel

Production is under the control of the general engineering division of the company at Newtownards, Co. Down.

Features which distinguished it from the earlier model are: hydraulically operated self-aligning load hooks, four-wheel power steering (with steering lock for road use) and equal wheel size all round. The new model will pick up a load of 20,000 lb., carry it 220 yards, set it down, and return unladen to the starting point—all within two minutes, it is claimed. With a load reduced to 14,000 lb. speed is raised from 12 m.p.h. (with full load) to 30 m.p.h.

Swinging Lifting Hooks

The load hooks clamp and lift hydraulically, aligning themselves automatically with the load. A relief valve provides overload protection. In the Marles integral power-assisted steering unit, pressure builds up only to the extent necessary to provide the steering effort needed. The power assistance gives effortless steering, so minimising physical fatigue normally associated with driving of heavy vehicles. The geometry of the steering linkage has been looked after to reduce tyre wear to a minimum.

The engine is a Perkins L4 industrial type four-cylinder diesel, yielding 62 b.h.p. at 2,000 r.p.m. The main gearbox provides three speeds forward and reverse; an Eaton two-speed differential is an effective solution to the problem of operation at maximum efficiency and economy under the differing load conditions in service. Synthetic rubber oil-resistant hose lines are used throughout the hydraulics system.

Three variants are at present offered, but the manufacturer is prepared to supply carriers with other basic dimensions if the demand is apparent.

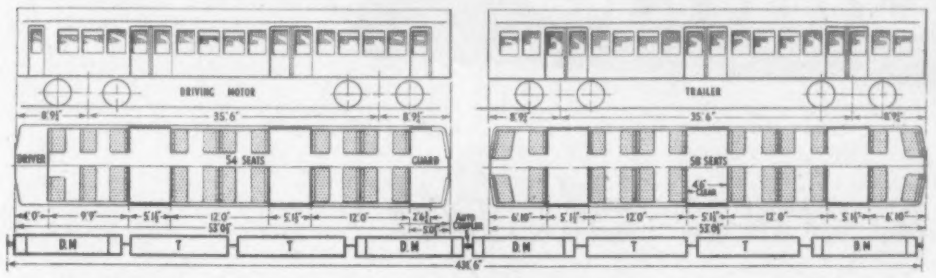
Clearance unladen beneath the frame is 66 in., distance between hooks hanging vertically is 42 in., 48 in. or 54 in. on standard models, overall width of the vehicle then being 84 in., 90 in. or 96 in. respectively. Overall height to top of enclosed cab is 11 ft., overall length 15 ft. 6 in., wheelbase 11 ft. 6 in. With a long load (i.e. one which limits steering angle) the outside turning radius of the carrier (four wheels steering) is 22 ft. 3 in. —23 ft. 3 in., depending on which of the widths are selected. The sales department of the British Straddle Carrier Co., Limited, is at 208A Regent Street, London, W.1.

Proposals for a new airport at Lusaka and the provision of adequate passenger and freight handling facilities at Ndola Airport as "a matter of urgency" have been made in the report of a committee appointed by the Federal Government of Rhodesia and Nyasaland. The report also suggested Ndola as the future regional airport to serve the Copperbelt area and discussed municipal participation in airport projects.

METROPOLITAN LINE STOCK

London Transport Provisional Designs

PROVISIONAL designs have now been prepared by London Transport for the new cars to be ordered at a cost of more than £5 million for the Metropolitan Line services to Amersham, Chesham and Watford. The stock is expected to enter service in 1961, replacing the present electric and steam hauled compartment stock. Each train will comprise four driving motor and four trailer cars, and will have a length of 431 ft. 6 in. over couplers. The eight cars will be arranged in two units each consisting of a driving motor car, two intermediate trailers and another driving motor car. Auto-couplers will be fitted at the outer ends of each four-car unit.



Arrangement of the proposed trains for the L.T.E. Metropolitan Line services. The seating arrangement is the only feature which has been definitely determined

The driving motor cars will have a driver's cab at one end and a guard's compartment at the other, occupying 4 ft. and 5 ft. 0½ in. respectively of the 53 ft. 0½ in. length over body ends. The guard's compartment will be fitted with single sliding doors on each side, which will give a 2 ft. 3 in. opening and will be available for the use of passengers when the compartment is not occupied by the guard. The main body space of the driving motor cars is divided into three bays of seats, separated by two 5 ft. 1½ in. vestibules, each provided with double sliding doors on each side of the car. The doors give a clear opening of 4 ft. 6 in. The passenger bays have glazed screens above the backs of the seats next to the vestibule. The screens form part of a partition which is carried across the upper part of the car to give a semi-compartment effect to each passenger bay.

The bay next to the guard's compartment is 12 ft. in length and has four seats each holding three passengers, in two facing pairs, on one side of the gangway, and four double seats, similarly arranged, on the other. The centre bay is identical. The bay next to the driver's cab is 9 ft. 9 in. in length and has one pair of double seats on one side of the gangway and a pair of seats for three on the other. There are also double seats on each side of the gangway with their back to the bulkhead between the passenger space and the driver's cab. Each driving motor car has 54 seats in all.

Mock-up of a centre bay of one of the cars being designed for the Metropolitan Line services showing the partitions creating the semi-compartment effect

Trailer Cars

The trailer cars are also 53 ft. 0½ in. in length over body ends. They have three pairs of double sliding doors on each side and three vestibules, dividing the cars into four semi-compartments. On each side of the centre vestibule are 12-ft. passenger bays with seating similar to that in the 12-ft. bays of the driving motor cars. At both ends of the trailer cars are 6 ft. 10 in. semi-compartments containing a seat for three facing a double seat with its back to the end wall of the car. On the other side of the gangway are two double facing seats. The total seating capacity of the trailer cars is 58.

The seats have higher backs than are normally provided with this type of transverse seat in London Transport rolling stock, and a grab handle is fitted at the gangway end of each seat back. There are no armrests between seats, but the side panels of the car have arm recesses at the outer end of each seat, except at casement positions on both sides of the vestibules and on the two-passenger seat side of the gangways. End doors are provided for emergency communication between cars as on most L.T.E. trains.

Unpainted Aluminium Alloy

The new Metropolitan Line rolling stock is to have unpainted aluminium alloy bodies, brought out at solebar level to the full permissible width of 9 ft. 8 in. and rising to waist level before the tumblehome of the sides commences. The cars will have bogies fitted with rubber suspension. Two prototype motor bogies for the new stock are now under construction at Acton Works. When completed, they will be tested extensively in service. The design of the new cars is not yet final, except as regards seating arrangements, and may be amended before orders are placed. The new Metropolitan Line stock is being designed at Acton Works of London Transport under the direction of Mr. A. W. Manser, chief mechanical engineer (railways).

The main lighting will be by two parallel rows of 4-ft. fluorescent tubes arranged down the centre of the roof of each car. The partitions between bays and vestibules will carry an incandescent emergency light in the centre. This will have a rectangular diffused glass cover on both sides and thus serve to light both passenger compartment and vestibule. Below the light fitments, the partitions will carry a route diagram of the Metropolitan Line.

Occasional tip-up seats may be fitted in the guard's compartment for use by passengers when such compartments are not being used by the guard. Handgrips of standard pattern will be fitted where space is required for the sliding door to enter its pocket when in the open position. Short racks for light parcels, alternating with advertisement display panels, are provided down the side of the car, the parcel racks being positioned longitudinally above the window seats. Quadrant-type ventilators are to be fitted.

Fluorescent Lighting

L.T.E. Automatic Signalling

CAMDEN TOWN INSTALLATION IN SERVICE

A FURTHER stage in the conversion to completely automatic signalling of junctions on the in-town sections of London Transport's Northern Line came into operation on June 14, when programme machines similar to those already working at Kennington were brought into use at Camden Town. The programme machines—a new type of equipment developed by London Transport—will carry out all signalling operations required to work the 1,200 trains a day on the Northern Line over their various routes and to their different destinations. The first machines, which were described in MODERN TRANSPORT of December 14, 1957, were brought into operation on January 26 at Kennington, and a further installation will follow at Euston later this year. The programme machines will then handle all Northern Line trains through the Kennington, Camden Town and Euston sections. Signalmen will continue to control trains on the outer sections of the line. The machines at Camden Town are housed in the former signal cabin at that station. Separate machines are provided for each of the four junctions linking the Charing Cross, City, Edgware, and Barnet and Mill Hill lines. There are also two time programme machines, for the northbound and southbound directions.

Variety of Conditions

It will be recalled that the programme machines draw their information from a plastics roll in which are punched holes giving full particulars of every train for the complete working day as set out in the working timetables. The plastics bands, each some 8 ft. long and 8 in. wide, are wound on rollers mounted in an easily removable frame. Separate rolls are provided for Monday to Friday, Saturday and Sunday working.

By the use of the switches in the central supervision room at Leicester Square three sets of conditions can be set up at Camden Town. There is the normal programme machine working when everything will then run automatically, in accordance with the timetable. In the event of a departure from the timetable, the equipment can be switched into train describer and "first come, first served" working, under which conditions the junction will continue to work automatically, but the trains will be signalled purely in accordance with their destination in the case of a splitting junction, and in accordance with the time of arrival in the case of a converging junction. The third possibility is that all automatic working can be switched out and the routes manually operated from the push buttons in the central supervision room.

A separate sequence programme machine is required for each track and the machine is stepped once for the passage of each train. Each sequence machine has reference to a time programme machine, of which there are two at Camden Town. The time programme machine carries similar information to the sequence machine, but is not stepped for the passage of each train. It is stepped after the lapse of time representing the interval between the previous train and the train due. The time information from the time programme machine is used to give a warning if the service is late, or to set in motion the alternative operation in the event of a train on a converging route being late. Programme machine operation has been developed under the immediate direction of Mr. R. Dell, signal engineer, and to the general requirements of Mr. C. E. Dunton, chief civil engineer, London Transport. The machines were manufactured by the W. R. Sykes Interlocking Signal Co., Limited.

Bedford

NEW 7-TONNERS

...with Bedford's own diesel

pay you extra dividends every mile

The new Bedford 7-tonners offer top engineering value with rock bottom economy. They are powered by the Bedford 6-cylinder diesel with its proved reliability and low operating cost.

Teamed with the heavy-duty Bedford 2-speed rear axle this power unit gives remarkable performance. High average speeds can be maintained without strain. Long engine life is assured. Extra pulling power is there for tough conditions.

In every way the new Bedford 7-tonners are built to pay you extra dividends. From the extra deep chassis frame and heavy duty springs to the tough economical engine they are designed for *action* . . . to go anywhere, to do a gruelling 7-ton job of work day in day out. There's no better value for money on the market.

New 8-ton and 10-*ton "Artics"* with Bedford's own diesel are also available—8-ton with single speed axle, 10-ton with 2-speed axle standard. Full particulars from your local Bedford dealer.

Better buy Bedford...you see them everywhere!

Vauxhall Motors Limited. · Luton · Beds

NEW EASTERN REGION SHIP

For Continental Freight Services

M.V. "ISLE OF ELY"

LAST week Mrs. H. C. Johnson, wife of the general manager of the Eastern Region of British Railways, launched the m.v. *Isle of Ely* at the yard of the Goole Shipbuilding and Repairing Co., Limited, in that town. This vessel is the first of two sister ships ordered by the Eastern Region of British Railways for its Continental freight services between Harwich and Rotterdam and Harwich and Antwerp.

Containers and General Cargo

The vessels have been designed to carry a full load of rail freight containers, or general cargo or, alternatively, part loads of each. Of the open shelter deck type, the principal dimensions are length between perpendiculars, 226 ft.; breadth moulded, 37 ft.; depth moulded to main deck, 13 ft. 3 in.; and depth moulded to shelter deck, 23 ft. The holds and 'tween decks can accommodate 42 of the largest B class railway containers. Since there is ample shore crane facilities at her anticipated terminal ports, no cargo handling gear is provided on the ship.

Hatches on both main and shelter decks have MacGregor patent watertight steel covers. Covers on shelter deck hatches are of the single pull type which can be rapidly opened or closed. Main deck covers are of the latest flush type permitting the use of fork-lift trucks. The size of hatches is such that all containers may be stowed on board either by lowering direct on to the deck or tank top or by "drifting" under the hatch coaming whilst still suspended from crane hook. Hatch covers are operated by a 5-ton electrically driven winch.

Capacity

Maximum deadweight capacity on the mean load draft of 13 ft. 2 in. will be approximately 900 tons. Total capacity of holds and hatches will be approximately 85,000 cu. ft. bale. To enable the vessel to maintain her normal schedule in moderate weather whilst in ballast, and to provide for variation in loading, ballast tanks of adequate capacity have been provided. The vessel has been designed for a service speed of 13½ knots under all reasonable weather conditions. Tank tests were conducted at the National Physical Laboratory at Teddington to determine the most efficient hull form and propeller design.

Accommodation has been arranged for a crew of 22. Officers and petty officers are in single cabins and other members of the crew in two-berth cabins. The captain's accommodation is panelled in weathered sycamore, the officers' messroom in rock maple and the chief engineer's room in avodire.

Equipment

The electrically driven windlass is of Emerson Walker manufacture. The warping capstan was supplied by Thos. Reid and Sons, Limited, which also supplied the 5-ton winch used for operating hatch covers. Steering gear is electric-hydraulic and was supplied by Brown Bros. and Co., Limited. Two 24-ft. aluminium alloy lifeboats by the Viking Marine Co., Limited, are fitted beneath gravity davits by Marine and Allied Industries (C. and I.), Limited. Two inflatable liferafts are also carried having sufficient capacity to take the whole crew. Navigational equipment includes radar, echo sounding equipment, electric log and radio telephone.

The main engine is by Ruston and Hornsby, Limited, and is of the 8VOXM type.[a] It generates 1,806 s.h.p. through a Modern Wheel Drive two-to-one reduction gear; there is an oil-operated reverse-reduction gearbox. The machinery is of the same type as has recently been installed in a number of British Transport Commission vessels. The three main electric generating sets consist of Ruston and Hornsby 3VCBZ diesel engines driving 55-kW Laurence Scott generators. All are arranged on flexible mountings.

Mrs. H. C. Johnson launches "Isle of Ely" at Goole

GREAT ORME RAILWAY

(*Continued from page 9*)

normally join the brake path on this shaft to the motor-shaft extension coupling are withdrawn and the belting is fitted, thus giving a speed sufficient to operate the car brakes. This is equivalent to 690 r.p.m. on the induction motor and the arrangement retains the use of the weight-operated brake in an emergency.

It has been found that the modern drive gives easier control with cleaner conditions and an economy estimated at £1,400 per season. At the peak of the season eight runs per hour can be made, so that 192 passengers can travel in each direction and as many as 220,000 have used the railway in one season.

After the investiture: Sir William Black of the A.C.V. group leaves Buckingham Palace after being knighted, accompanied by Lady Black and their daughter, Mrs. Patricia Smyth; right, Mr. James Amos (Scottish Omnibuses) shows his C.B.E. insignia to Mrs. Amos and, on his left, his niece, Miss Isabella Amos

The new 37-seat B.M.M.O. coach of the S17 class at Victoria Coach Station on the London—Aylesbury—Birmingham service. The unladen weight is 6 tons 9 cwt.

ROAD VEHICLE INDUSTRY

Commer Superpoise 6-Tonner

INTRODUCED by Commer Cars, Limited, to meet a demand for a Commer lorry in the expanding 6-ton capacity field, a new normal-control Superpoise 6-ton chassis provides space for a 15 ft. 6 in. long body on a wheelbase of 14 ft. 1 in. Available with either right- or left-hand control and with the modern Superpoise rubber-mounted three-seat steel cab, the new chassis is designed for a gross weight of 9 tons 5 cwt. (21,000 lb.). Approximate weight of the chassis and cab in kerb trim ranges from 2 tons 12¾ cwt. to 2 tons 18 cwt., depending on the power unit selected, which can be the 4.139-litre 91-b.h.p. Commer petrol engine, the Perkins P6 4.73-litre 83-b.h.p. diesel engine or the Perkins R6 diesel rated at 104 b.h.p. at 2,500 r.p.m. Transmission is through an 11-in. (12-in. with the R6 engine) single dryplate clutch, four-speed constant-mesh gearbox and fully floating spiral bevel rear axle. Axle ratio is 7.2 to 1 with the petrol or P6 engine and 6.57 to 1 with the R6. Standard tyres are 7.50-20 12-ply, with various optional sizes, and vacuum-servo two-leading-shoe brakes provide a total lining area of 407 sq. in. The standard Commer 15 ft. 6 in. platform or dropside body is available with the chassis and optional equipment offered includes flashing direction indicators, front dampers, four-speed synchromesh gearbox with overdrive, two-speed axle and porous-chrome cylinder bores on the petrol engine.

Simms Royal Show Award

THE Simms Tensec hand-operated starter for diesel engines gained a highly commended award in the silver medal competition of the Royal Agricultural Society of England at the recent Royal Show. During the show week, Miss Lesley Saweard (Christine Archer, of the B.B.C. programme) gave many demonstrations to visitors to the Simms stand, proving that the claim for easy starting is not exaggerated and that it can be done even by a woman.

Steel-Cord Dual-Purpose Tyre

INTRODUCED 18 months ago in the U.S. Royal Fleetway tyres manufactured in Britain by the North British Rubber Co., Limited, the steel-cord construction named Safety Steel Shield has now been incorporated by the company in a new on- or off-road tyre. Named U.S. Royal Super Fleetmaster, the new tyre has a three-rib multi-edge tread for cool running on the road and wide shoulder lugs to give maximum traction in soft going. The shield of 40,000 steel threads is embedded in a new chemically balanced tread compound.

More Powerful Gardner Diesel Engine

NOW in production by Norris, Henty and Gardners, Limited, is a new more-powerful automotive diesel engine with exceptional power-to-weight ratio and overall thermal efficiency. Named Type 6LX, the new unit occupies the same space as and is interchangeable in respect of engine mountings, flywheel housing and so on with the well-known Gardner 6LW engine. From a capacity of 638 cu. in. (10.45 litres), it develops 150 b.h.p. at 1,700 r.p.m. and 485 lb./ft. torque at 1,000 to 1,100 r.p.m. The approximate weight is 1,600 lb. and specific fuel consumption is 0.33 to 0.34 lb. per b.h.p.-hr., representing a thermal efficiency around 40 per cent. The 6LX will be on view at the forthcoming Commercial Vehicle Exhibition and a full description will appear in our show preview issue.

Walker's New Thames Range

INTRODUCED by B. Walker and Son, Limited, Watford, Herts, is a new range of bodies designed for the Ford Thames 10-12 cwt. and 15-cwt. chassis-cab. The range includes dropside lorry, van, pantechnicon, milk float and pick-up bodies. The pick-up is of all-steel construction with interior dimensions of 7 ft. 10 in. length, 4 ft. 2 in. width and 1 ft. 8 in. deep sides. Other types include a 315 cu. ft. capacity van and a 415 cu. ft. pantechnicon, both incorporating Walker steel channel and hardwood framing with steel panelling throughout. The dropside lorry has steel side sills giving interior dimensions of 8 ft. 2 in. by 5 ft. 4 in. with sides and tailboard 1 ft. 3 in. deep. Two milk float bodies are available, one with a flat floor throughout and one with a low-loading floor having specially shaped wheelboxes to accommodate standard-size milk crates.

Hand Basin Attachment

A MOBILE washing unit designed to be attached to a road vehicle for use by those whose work brings them into contact with contaminated matter consists of a 6-gal. copper tank mounted on the outside of the vehicle frame or suspended from the body behind the cab. This tank, fitted with filler cap and draw-off tap, is housed inside a strong galvanised outer jacket constructed of angle iron with galvanised steel panels. It is highly insulated to maintain the temperature of a warm water supply for a whole day's use. Attached to the face of the tank is a hinged galvanised washing trough which, when pulled down, exposes a lever action draw-off tap. After use the trough is returned to the vertical position and the contents automatically emptied. The equipment, designed by Councillor W. E. Wright, a former Mayor of Solihull, is to be manufactured in all sizes to suit various types of vehicles by Cove Products, Limited, Boulton Road, Solihull, Warwicks.

Tubeless Earthmover Tyres

PRODUCTION of tubeless nylon-cord earthmover tyres announced by the Goodyear Tyre and Rubber Co. (Gt. Britain), Limited, has been made possible by the Goodyear exclusive 3-T (triple tempering) process. Providing such advantages as complete elimination of tube and flap troubles and cooler running, the new tyres are said to give extra strength, greater grip and stability, maximum resistance to bruising and abrasion and complete reliability in operation. They are now made at Wolverhampton in a wide variety of sizes and tread designs. The Goodyear 3-T process was developed to obviate the major problem of growth in service experienced with many early nylon-cord tyres. The company has now developed a process of post-cure inflation which is claimed to eliminate completely the tendency for a tyre to shrink slightly after removal from the intense heat of the mould. In the process, immediately a 3-T nylon tyre is removed from the vulcanising unit, and while it is still hot, it is inflated to a fairly high pressure on a special wheel during the cooling period, thus ensuring correct physical dimensions and shape.

SOCIAL AND PERSONAL

Death of First I.C.A.O. President

WE record with regret the death of Dr. Edward Pearson Warner, architect of the International Civil Aviation Organisation and president of both that body and the provisional organisation which preceded it from 1945 until his retirement last year. He was 63. Dr. Warner became a member of the U.S. Civil Aeronautics Board in 1939 after a career in aeronautical engineering and journalism. He was an honorary fellow of the Royal Aeronautical Society. Mr. Walter Binaghi, his successor as president, says of Dr. Warner: "No one can read into any of our specifications, recommendations, studies or records without constantly finding his thoughts and influence. To all who had the privilege of knowing him he imparted his knowledge, his equanimity, his international spirit. In his personal contacts he always gave warm friendship and kindness, which were particularly impressive because they came from an outstanding man, yet were wrapped in modesty. . . ."

* * *

The retirement has taken place of Mr. C. E. Burton, chief designer of Transport Equipment (Thornycroft), Limited. Mr. Burton has been connected with the motor vehicle industry for 50 years. He served an apprenticeship with T. Coulthard and Son, Limited, Preston, afterwards serving with Dick Kerr, Limited, Preston, and Rolls-Royce, Limited, Derby. In 1922, after a period with Vulcan Motors, Limited, Southport, he joined Karrier Motors, Limited, Huddersfield, as assistant to the chief engineer. From 1926 to 1929 he was engaged in the experimental design department of Tilling-Stevens, Limited, and from 1929 to 1930 was in the research department of the London General Omnibus Co., Limited, Chiswick. From 1930 to 1935 he was works manager and chief engineer of the Gilford Motor Co., Limited, High Wycombe. Mr. Burton went to Thornycroft at Basingstoke in 1935. Latterly he has been responsible for the Big Ben and Antar heavy-duty vehicles, but during the 1939-45 war many specialised vehicles were developed under his guidance. These included searchlight vehicles, the amphibious Terrapin and, by no means least, the Nubian cross-country vehicle, which has since been utilised in many peacetime roles and of which up to date some 6,000 have been manufactured.

Mr. C. E. Burton

* * *

Mr. M. F. Norbury, Assoc.Inst.T., has been appointed sales manager, commercial tyre division, Pirelli, Limited, in succession to Mr. Y. H. Sowter, whose retirement is announced. Mr. Norbury assumes responsibility for the company's activities in the mileage contract, original equipment and national user fields. He has been with Pirelli for 24 years, having joined the company as a junior representative in Manchester in 1934. Subsequently, he represented the company in Northamptonshire, Warwickshire and Birmingham. After serving in the Coldstream Guards and the Royal Air Force as a pilot, he joined the commercial tyre division of the company in London. Mr. Norbury is an affiliate member of the Institute of Road Transport Engineers. He will represent Pirelli on the mileage group of the Tyre Manufacturers' Conference.

Mr. M. F. Norbury

* * *

With effect from July 1 Mr. F. A. Pope, C.I.E., M.Inst.T., has been appointed as a director of the Metropolitan-Cammell Carriage and Wagon Co., Limited, and on and from July 16 Mr. J. G. James, commercial manager, and Mr. W. Scott, chief accountant, have been appointed special directors.

* * *

Mr. F. K. Pointon, general manager of Hebble Motor Services, Limited, has been appointed general manager of East Midland Motor Services, Limited, in the place of Mr. S. J. B. Skyrme, who, as previously reported, is succeeding Mr. C. W. Wroth as general manager of the Potteries Motor Traction Co., Limited. Mr. Pointon will take up his new appointment as from a date to be agreed.

* * *

The transport committee of Birmingham Chamber of Commerce records that Mr. J. W. Collinge, M.Inst.T., is retiring from business affairs. He has been a member of this committee since its constitution in its present form and has served on the executive committee of the road traffic section. Since 1950 he has acted as a representative of the Society of British Gas Industries on the Traders' Co-ordinating Committee on Transport and was elected to the standing sub-committee of that body.

* * *

The second award of the C.M.U.A. road transport research fellowship has been made by the Institute of Transport to Mr. A. Burrows, A.M.Inst.T., general manager and engineer, Lancaster City Transport. Mr. Burrows will utilise the fellowship to study in Great Britain and Europe the subject of industrial relations in the transport industry with special reference to joint consultation. The study will occupy about four months. The Institute has awarded a Henry Spurrier memorial scholarship to Mr. A. S. Henderson, A.R.I.B.A., for the purpose of studying traffic engineering at Stuttgart Technische Hochschule under Professor Max-Erich Feuchtinger. Mr. Henderson will pursue his studies through the 1958-59 session. The Sir William Chamberlain memorial scholarship has gone to Mr. G. I. McKay, a technical assistant with Manchester Corporation Transport Department, to enable him to undertake a study of maintenance methods and systems at a number of road passenger transport undertakings in East Lancashire. A Silver Jubilee scholarship has been granted to Mr. E. P. Scholtz, A.M.Inst.T., of the general manager's office, South African Railways, to assist him in his studies for the degree of B.Com.(Admin.) of the University of South Africa.

L.M.R. Engineering Appointment

IT is announced by the London Midland Region that new responsibilities have been taken over by Mr. J. F. Harrison, M.I.Mech.E., M.I.Loco.E., chief mechanical and electrical engineer of the region. Mr. Harrison now assumes responsibility for the overall direction of all the mechanical and electrical engineering work of the region, including the chief mechanical and electrical engineer's department and the carriage and wagon engineer's department as well as the technical aspects of motive power and road motor engineer departments. In order to enable him to administer effectively this increased range of responsibilities Mr. Harrison is to make his headquarters at Euston.

* * *

The retirement is to take place in September of Mr. N. A. Scurrah, for 20 years rolling stock engineer of Bradford City Transport. He has been in the department for 42 years in all. His recommended successor is Mr. K. E. Griffiths, his assistant.

* * *

Mr. A. F. L. Pollitt is succeeding Mr. C. E. Burton as chief designer of Transport Equipment (Thornycroft), Limited. He joined the company in 1947 as assistant chief designer from F.V.R.D.E., where he was assistant director in charge of medium vehicle development. Mr. Pollitt was earlier associated in field carriage design with Vickers, Limited. He then became successively a designer of passenger and commercial vehicles with the Associated Equipment Co., Limited; chief engineer in charge of design and development of passenger and commercial vehicles with the Gilford Motor Co., Limited; chief commercial vehicle designer with Sentinel Waggon Works (1936), Limited; and assistant chief designer of passenger vehicles with the Bristol Tramways and Carriage Co., Limited. Mr. Pollitt served with the Forces from 1939 until 1945, reaching the rank of lieutenant-colonel, in which capacity he was attached to the Ministry of Supply.

Mr. A. F. L. Pollitt

* * *

Rolls-Royce, Limited, announces that Mr. F. T. Hinkley, B.Sc., M.I.Mech.E., Mr. A. A. Lombard, F.R.Ae.S., and Mr. J. L. E. Smith, M.A., have accepted invitations to join the board.

* * *

Remington Rand, Limited, announces the appointment of Mr. D. G. Bedingham to the post of sales personnel manager.

* * *

Mr. R. G. Davies, only recently made divisional traffic officer, North Western Division, has now been appointed district manager, Liverpool district, North Western Division, B.R.S. Mr. C. Walton, district traffic superintendent, Preston district, succeeds him in Manchester. Mr. Davies entered the service of W. H. Bowker, Limited, Blackburn, in 1937. He became depot superintendent of the B.R.S. Preston Dock depot in 1955 and, following reorganisation, branch manager of the Irish Ferry branch in the following year. Mr. Walton joined the Feather, Ombler and Kent group of companies at Padiham in 1938 and later became secretary and chief assistant to the managing director. He became district traffic superintendent of the B.R.S. Preston district in 1956.

In connection with P.M.T. diamond jubilee celebrations, over 300 members of its 25-Year Club were entertained to dinner. Gifts were presented to 10 members who had recently completed 40 years' service; 38 present employees have reached this stage and three their half century. Here, the chairman, Mr. R. W. Birch, makes a presentation to Miss M. L. Cope, chief dispatch clerk (the first woman to complete 40 years with the company). Mr. C. W. Wroth, general manager, is seen on Mr. Birch's left

* * *

Colonel Sir Ralf Emerson, C.I.E., O.B.E., chairman of the Nigerian Railway Corporation, has been appointed a director of the West African Provincial Insurance Co., Limited, of Nigeria.

* * *

The Tilling group of companies announces the following appointments which take place on August 1: Mr. Stanley Bartlett, assistant traffic manager, Hants and Dorset Motor Services, Limited, Bournemouth, has been appointed traffic manager. He succeeds Mr. D. W. Morison who, as already announced, was recently appointed general manager. Mr. S. E. Gwinnell, schedules superintendent of the undertaking, has been appointed assistant traffic manager.

* * *

At a ceremony at Euston Station on Wednesday of this week the Duke of Norfolk named the British Railways London Midland Region locomotive No. 70048, *Territorial Army*. The general manager of the L.M. Region, Mr. David Blee, presided. Before unveiling the plaque the Duke inspected a detachment of the Territorial Army drawn up on the platform. He was accompanied by Major-General W. R. Cox, C.B., D.S.O., Director of the Territorial Army. Mr. Blee indicated that with the approach of the diesel era the name *Territorial Army* would be transferred to a diesel-electric locomotive. No. 70048 is a B.R. Standard Britannia Class locomotive built at Crewe in 1954. It is stationed at Holyhead and its main duties include the haulage of the *Irish Mail* and other expresses. The Duke drove the locomotive for a few yards under the guidance of Driver Frederick Brookes, who joined the L.N.W.R. at Willesden in 1917 and served in the Territorials from 1928 to 1932. He has also been selected for driving the Royal Train.

IMPORTANT CONTRACTS

B.R. Dieselisation Accelerated

As part of the recently accelerated programme of partial conversion to diesel traction on British Railways, the British Transport Commission has placed orders for 124 main-line diesel-electric locomotives for mixed-traffic duties. A batch of 40 complete locomotives of this type is to be built by the Brush Electrical Engineering Co., Limited, Loughborough, and the remaining 84 are to be erected in British Railways' workshops incorporating traction equipment supplied by the British Thomson-Houston Co., Limited, Rugby. Deliveries of the locomotives and traction equipment will begin early in 1959. The Eastern Region is to have 106 of the 124 locomotives now ordered and the remaining 18 will go to the North Eastern Region. All the locomotives will be in the 1,000 to 1,250 h.p. range, classified as Type 2 in the British Railways classification of main-line diesel locomotives.

Pye Equipment For Hungary

International Aeradio, Limited, announces that negotiations have just been completed with a delegation of the Civil Aviation Board of Hungary for the supply to the Hungarian Civil Aviation authorities of ground ILS equipment and to MALEV, the Hungarian air line, of airborne ILS equipment. Pye ground ILS type PTC1100 will be installed at Ferihegy, the airport of Budapest, before winter, and STC airborne equipment will be supplied to MALEV and installed in its aircraft.

Oil Mist Detectors Ordered

Following the formal approval of the Graviner-B.S.R.A. oil mist detector (described in MODERN TRANSPORT for July 19) by the Ministry of Transport and Civil Aviation in May, Ellerman Lines, Limited, has placed an order for two detectors for each of its ships, *City of Port Elizabeth, City of Durban, City of Exeter*. A ship of the Ellerman line was fitted with a Graviner-B.S.R.A. oil mist detector during its extensive service trials at sea.

Hardec Panels in Portuguese Buses

A Portuguese firm of bus and railway coach bodybuilders, U.T.I.C., is now using Hardec melamine-surfaced hardboard for interior panelling. Hardec, which is a balanced, decorative material, is produced at the Weybridge factory of the Airscrew company and Jicwood, Limited. The company's sole agent in Portugal, Carma, Limitada, of Lisbon, has been approached by several coach-building firms interested in Hardec.

Simon-Equipped Karrier Bantam

The City of Durham has purchased through the Karrier Motors main dealer, Minories Garage, Limited, Darlington, a 2-3 ton Karrier Bantam equipped with the versatile Simon hydraulic platform. The equipment, which has been described in MODERN TRANSPORT, provides a maximum working height of 30 ft. at a maximum radius from the vehicle of 17 ft. 6 in., with movement of the working platform controllable from the platform itself.

Tractors For Refuse Disposal

A fleet of 14 British B-250 tractors made by International Harvester was recently supplied to the Karachi Municipal Corporation. Faced with a big refuse disposal problem and a fast-growing population, it was decided to employ tractors and trailers for the removal of refuse instead of conventional collection vehicles. The plan has proved successful as one tractor can keep as many as three trailers going in relays while, in addition, tractors can be used on municipal work other than refuse disposal. Since the first 14 were supplied a further 27 tractors have been ordered by the same municipality.

Aircraft Fuelling at Lisbon

The inauguration of BP Aviation Service's new hydrant system for aircraft fuelling at Portela Airport, Lisbon, took place last week. The new hydrant system, designed for a fuelling rate of up to 1,200 gallons a minute, has been installed by BP to meet the requirements of large modern jet aircraft. Portela Airport is expected to become an increasingly important point for intercontinental air traffic on the North and South Atlantic and African routes. Very high-speed fuelling will be required by the jet aircraft shortly coming into service on these routes and the facilities established by BP incorporate the latest developments in this field.

Eastern Region Contracts

The Eastern Region of British Railways has placed the following contracts:

W. and C. French, Limited, Buckhurst Hill, for reconstruction and widening of superstructures of three bridges at Bishop's Stortford and one bridge between Mumby Road and Sutton-on-Sea.

Metropolitan-Vickers-GRS., Limited, London, W.C.2, for supply and installation of retarder brake control equipment at Ripple Lane new marshalling yard.

Westinghouse Brake and Signal Co., Limited, London, N.1, for supply and installation of signalling and automatic train control equipment between Bethnal Green, Enfield Town, Chingford, Hertford East and Bishops Stortford, and between Basildon (20-mile post) and Shoeburyness.

Samuel Butler and Co., Limited, Stanningley, for repairs to superstructure of train ferry terminal bridge, Harwich.

Wild-Barfield Furnaces, Limited, Watford, for gas carburising plant for case hardening at Doncaster carriage works.

The British Vacuum Cleaner and Engineering Co., Limited, Leatherhead, for vacuum cleaning plant, associated pipework and accessories at Ilford electric train depot.

Wellerman Bros., Limited, Sheffield, 3, for reconstruction of superstructure of bridge at Woodgrange Park Station.

★

TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

July 29—Union of South Africa.—O.F.S. Provincial Administration for 17 heavy-duty hydraulically operated front-end bucket LOADERS of 1½ cu. yd. capacity (or maker's nearest standard) complete with hydraulic rear-end RIPPERS, all mounted on CRAWLER TRACTORS. Tenders, endorsed "Tender No. 2 of 1958/59 for road building equipment," to the Secretary, O.F.S. Provincial Tender Board, P.O Box 517, Bloemfontein. (ESB/16963/58.)

July 30—Vietnam.—Central Purchasing Authority for 90 four-wheel-drive 12-passenger or 1-ton DUAL-PURPOSE VEHICLES, 21 four-wheel-drive 2½-ton DUAL-PURPOSE VEHICLES and three RECOVERY VEHICLES fitted with two 6-ton-pull winches. Tenders to the Central Purchasing Authority, P.O. Box 280, Saigon. (ESB/17063/58/ICA.)

July 30—Vietnam.—Central Purchasing Authority for 250 ¼-ton four-wheel-drive UTILITY VEHICLES. Tenders to the Central Purchasing Authority, P.O. Box 280, Saigon. (ESB/17252/58/ICA.)

July 30—Korea.—International Co-operation Administration for nine 1½-ton LORRIES with bodies 12 ft. by 7 ft. by 3 ft. deep and four-wheel drive. Tenders to the Office of Supply, Government of the Republic of Korea, Seoul. (ESB/18065/58/ICA.)

August 6—Belgian Congo.—Ministry of Colonies, Brussels, for 18 DIESEL ENGINES for fitting to 5-ton whaleboats). Photocopies of tender documents from Export Services Branch, B.o.T., price 13s. (ESB/17982/58.)

August 8—South-West Africa.—Tender Board for nine 5-ton petrol-engined LORRIES with 14-ft. by 7 ft. steel platform bodies. Tenders through local agent to South-West Africa Tender Board. (ESB/17782/58.)

SHIPPING and SHIPBUILDING

Sideways Power for "Oriana"

When she enters service the Orient Line 40,000-ton vessel *Oriana*, now building by Vickers - Armstrongs (Shipbuilders), Limited, at Barrow-in-Furness, will have the facility of manoeuvring crabwise in harbour. At the request of the Orient Steam Navigation Co., Limited, Vickers-Armstrongs has devised a system of transverse propulsion which will be installed in the new liner. This consists of circular steel casings arranged across and through the vessel at the bow and stern at an appropriate depth below the waterline, and within these casings are fitted the propeller assemblies, which provide the propulsion effort. The Gill pump principle is the basis of this design. Both the bow and stern installations consist of two units which may be operated singly or together and all units are remotely controlled from the bridge, where control pedestals are arranged in the centre of the bridge and also on either wing.

Eire to Increase Harbour Dues

The Eire Minister for Industry and Commerce proposes to increase harbour dues for Dublin, Balbriggan and Skerries. It is proposed to increase the present tonnage rate for cross-channel vessels from 1s. 5d. to 1s. 7d. and tonnage rate for ships coming from foreign ports from 1s. 11d. to 2s. 5d. The order also provide for an increase of roughly 12½ per cent in the present schedule of goods rates. Rates were last increased in 1943.

Another All-Time Record at Liverpool

The annual statement of shipping issued by the Mersey Docks and Harbour Board shows that during the year ended July 1, 1958, the total net register tonnage of shipping which entered the River Mersey was 27,495,336. The tonnage of vessels entering the Board's docks was 18,936,395. These figures show an increase of 936,059 tons and 919,666 tons respectively compared with last year and both are all-time records for the port.

Assurance for Shipyard Workers

For what is believed to be the first time in the shipbuilding industry, 12,000 Clydeside and Tyneside workers are now given assurance cover. The Swan, Hunter and Wigham Richardson group has announced a life assurance scheme. It applies to all employees between the ages of 21 and 65 not eligible for the staff pension scheme. Next year there will be a provident fund as well, open to all group employees with more than two years' continuous service.

Indian Desire to Expand Fleet

At the inauguration of a new direct service between Calcutta and New York, Mr. S. K. Patil, now Indian Minister of Transport, declared that her problem in expanding her mercantile fleet was not foreign exchange but that of maintaining it. Not only money was involved in buying new ships but proper technical know-how and organisation to maintain the ships. Mr. Patil said he saw no cause for despondency as long as private enterprise co-operated with the Government of India. India was at present negotiating with Japanese shipping interests about utilising their idle cargo shipping by acquiring more ships for near-old ships. Expressing an anxiety to increase shipping, he said that the government was seriously considering whether it should buy more ships from Japan, whose shipyards had idle capacity.

Inaugurating celebrations at Vishakapatnam to mark the reaching of a total tonnage at the Hindustan Shipyard of 100,000 gross tons, Mr. Patil said that India was trying now to regain its position as a maritime country and not a maritime power. Mr. C. K. Reddi, managing director of the shipyard, said that during 10 years the shipyard had produced 100,000 tons gross of ships. He added that it would be necessary to extend the fitting-out jetty so as to accommodate at least three ships at one time.

South Wales Ports Changes

Questions put recently to the Minister of Transport by Welsh M.P.s regarding anomalies in freight charges at the South Wales ports have been discussed at a meeting of the joint ports committee and general cargo sub-committee of the Industrial Association of Wales and Monmouthshire. A statement issued after the discussion indicates that correspondence between the Association and the Minister in respect of dock and railway freight charges in South Wales is being maintained and it is hoped that a further announcement will be available shortly.

Tug with Hull Features

A 106-ft. tug, the *Thunderer*, with a new hull design, giving the propeller greater thrust, it is claimed, in relation to horsepower, was shown at the Broomielaw, Glasgow, by the owners, Steel and Bennie, Limited. Chief feature is the all-welded hull which is shaped to create greater pressure of water round the propeller. This in turn effects a considerable improvement in speed and pulling power. The *Thunderer*, its diesel engine providing 880-b.h.p., achieved a trial speed of 12½ knots and pulling power of 11½ tons. She was delivered within seven months of the date of the contract being placed and is the first Clyde tug to be built by P. K. Harris (Shipbuilders), Limited, at its yard in Devon.

★

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Tilling-Stevens

The directors of Tilling-Stevens, Limited, are recommending payment of dividend on the 5 per cent cumulative preference shares in respect of the six months ending July 31, 1958.

Metro-Dorman Carriage

Metro-Dorman Carriage Co., Proprietary, Limited, with a capital of £500,000, has been formed jointly by Dorman Long (Africa), Limited, and Metropolitan-Cammell Carriage and Wagon Co., Limited, to build steel lightweight passenger rolling stock. It is planned to extend the Dorman Long works in South Africa which has made goods rolling stock since 1944, with an output of 28,000 units to date.

George Cohen 600 Group

The George Cohen 600 Group, Limited, shows for the year ended March 31, 1958, group profits before taxation £1,813,815 (£2,336,628), profits tax £202,419 (£194,178), income tax £794,219 (£1,044,764), attributable to members of the holding company £808,179 (£1,092,462). Ordinary dividend for the year is 12 per cent (same).

Printed by Odhams (Watford) Limited, St. Albans Road, Watford, Herts, for and published by, Modern Transport Publishing Co., Limited, Russell Court, 3-16 Woburn Place, London, W.C.1.